DOCUMENT RESUME

ED 085 502 CE 000 629

AUTHOR Sugarman, Michael N.; And Others
TITLE Teaching Technical Education: A Model for the Preparation of Instructors for Post-Secondary Technical Education.
INSTITUTION Akron Univ., Ohio. Coll. of Education.
PUB DATE Jul 73
NOTE 198p.

EDRS PRICE MF-$0.65 HC-$6.58
DESCRIPTORS Followup Studies; *Institutes (Training Programs); Models; Professional Continuing Education; Program Planning; Seminars; Statewide Planning; *Teacher Education; *Technical Education; *Vocational Education Teachers
IDENTIFIERS *Education Professions Development Act; EPDA

ABSTRACT

The book consists of two equal parts. Part I is twelve selected papers on teaching in technical education prepared for Education Professions Development Act (EPDA) Project 72042. Among topics covered are disadvantaged college students, adult learning, behavioral objectives, individualized instruction, curriculum development, brainstorming, grading, evaluation, and administration. The second part presents a model developed for the project which could be disseminated to teacher training institutions and integrated into the State-wide program of teacher education as needed. The training model was divided into two phases: first, an intensive three-week course of study in 22 topic areas; second, two weekend follow-up seminars to provide assistance to the new instructors, to reinforce their skills, and to obtain feedback. Appendixes include an evaluation and documents connected with the program. (MS)

FILMED FROM BEST AVAILABLE COPY

TEACHING TECHNICAL EDUCATION

ED 085502

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

MICHAEL N. SUGARMAN
BILL J. FRYE
RICHARD J. KURY

COLLEGE OF EDUCATION
THE UNIVERSITY OF AKRON
AKRON, OHIO

CE 000 629

ED 085502

TEACHING TECHNICAL EDUCATION

A MODEL FOR THE PREPARATION OF INSTRUCTORS FOR POST-SECONDARY TECHNICAL EDUCATION

MICHAEL N. SUGARMAN
BILL J. FRYE
RICHARD J. KURY

COLLEGE OF EDUCATION
THE UNIVERSITY OF AKRON
AKRON, OHIO

EPDA PROJECT 72042
JULY, 1973

ACKNOWLEDGEMENTS

The authors wish to express their deep appreciation to the participants for their cooperation; to the consultants for their contribution; and to Pat Ruhman for assistance in the preparation of this publication.

The assistance and cooperation of the Ohio Division of Vocational Education in making this project possible is also deeply appreciated.

STAFF

Director: Dr. Michael N. Sugarman, Assistant Professor of Education, is presently serving as the program director of the undergraduate and graduate degree programs in Technical Teacher Education in the College of Education at the University of Akron.

Dr. Sugarman received his B.S. (Bus. Ad.), Ed.M. and Ed.D. at the State University of New York at Buffalo. His professional experiences include seven years as a teacher and guidance counselor in the Buffalo Public Schools, one year as the community college program officer for the State of Michigan, three years as an assistant professor in the Department of Vocational-Technical Education at Rutgers University, and three years at the University of Akron.

Dr. Sugarman is active in the Technical Education Division of the American Vocational Association and has published in several professional journals.

Assistant Director: Dr. Bill J. Frye is an assistant professor in the University of Akron College of Education. He received his Ph.D. from the Ohio State University and his B.S. and M.S. degrees from Indiana State University. Prior to his present position in the technical education program of the University of Akron, he taught as a public school teacher in Indiana, and at Indiana State and Ohio State Universities.

Dr. Frye has published in several professional journals, and has served as a consultant for both secondary and post-secondary teachers. His primary responsibility at the University of Akron is teaching professional courses in the technical education program.

Technical Assistant: Richard J. Kury served as a graduate teaching-research assistant in the College of Education at the University of Akron during the project. His B.S.I.M. and M.S.T.E. were earned at the University of Akron.

He is currently Director of Occupational Teacher Education at Siena Heights College, Adrian, Michigan.

TABLE OF CONTENTS

Part I Selected Papers on Teaching in Technical Education 1

What Does it Mean to be a Professional in Technical Education? 2
Angelo C. Gillie

Adult Learning and Education Applied to the Two-Year College 5
Harvey L. Sterns and Dale G. Romanik

Learning Needs of Disadvantaged College Students 24
Peter J. Hampton

Individualizing Instruction 34
Marion Ruebel

Teaching and Behavioral Objectives 38
Isobel L. Pfeiffer

Development of Curriculum and Preparation for Instruction in Vocational and Technical Education Albert J. Pautler, Jr. 43

Evaluation Based upon a Systematic Analysis of Teaching: The Teaching Skill of Brainstorming Charles R. Doty 60

Teaching Strategies in Technical Education 68
John B. Moullette

The Role of Computers in Individualizing Instruction 74
John J. Hirschbuhl

Grades and Grading Systems 86
Isadore Newman

The Evaluation of Instruction 94
John Thompson

An Administrator Looks at Technical Education Faculty 96
Leonard Slominski

Part II The Model 100

I. Introduction 102

II. Statement of Problem 104

Phase I Objectives 105
Phase II Objectives 107

III. Procedures 108

Intra- and Inter-Institutional Cooperation 108
The Program 108
a) Phase I 108
b) Phase II 109
Field Experience 109
Phase I Topical Outline 109
Institutional and Systematic Change 110
Participants 111
Criteria for Eligibility of Participants 111
Involvement 112
Physical Facilities 112
Library Facilities 112
Assessment and Evaluation 112

IV. Analysis 114

Design Evaluation 115
Procedure Timetable 116
Technical Education Institute Flow Chart Model 120
Student Selection 123
Speakers 124
Administrative Planning 124
Phase I Analysis 126
Phase II Analysis 127

V. Evaluation 129

The Participants 129
Pre-Test Self-Perception of Knowledge 132
Participant Survey 140
Participant Evaluation of Institute 142
Participant Utilization of Knowledge 142
Final Evaluation 146
a) Student Evaluation 146
b) Evaluation by Supervisors 152

VI. Summary and Recommendations 154

Appendix A 158
Report of a Research and Evaluation Consultant 159

Appendix B 162
Certificate of Completion 163
Participants 164
Advisory Committee 167
Area of Specialization 168
Participant Evaluation 169
Post-Conference Survey 170
Utilization Data 171
Publications Distributed to Participants 175

Appendix C 176
Questionnaires - Students 177
Questionnaire - Supervisors 191

PART I

SELECTED PAPERS

ON

TEACHING IN TECHNICAL EDUCATION

The following papers were prepared for EPDA Project 72042 and remain the property of the authors. The papers are representative of the major content of the project.

WHAT DOES IT MEAN TO BE A PROFESSIONAL IN TECHNICAL EDUCATION?[1]

Angelo C. Gillie
Pennsylvania State University

One is tempted to embark on a discussion of the role of the professional in technical education by attempting to generate a definition of technical education. This author feels that no single definition could be agreed upon by technical educators. The more constructive approach is to describe technical education in a general way such that its place within the rubric of vocational education is seen. Those programs and other efforts aimed at preparing, updating, upgrading, and retraining of middle level workers loosely identified as "technicians" comprise technical education. Seen in this light, technical education includes certain secondary, post-secondary, and adult types of efforts, and spans a host of jobs in the occupational spectrum. Proof of this is that technicians are found in the social-health related fields as well as the engineering related areas. Also, they are found in levels of jobs that vary from skilled to highly cognitive. The technical educator is one who deals with the vocational aspects of the education for these persons. Using this as a basis, we can now proceed to discuss what it means to be a professional in technical education.

The Role of Technical Education and Its Relationship to Vocational Education Philosophy

Since technical education has a broad horizontal component (with occupations that range from engineering related to human service related jobs) and a comprehensive vertical component (which embraces certain secondary, post-secondary, and adult education programs), it is found to be deeply enmeshed in the overall vocational education effort. Its role in preparing some people for their first entry into the world of work and others for reentry after updating, upgrading, or retraining, is basically congruent with the role of all vocational education. The underlying objective of modern day technical education is to serve people in such a way that they have improved possibilities of becoming productive individuals with a life style suitable to their interests and abilities. Therefore, this author feels that the philosophy of technical education and that of vocational education are synonymous. The fundamental meaning of professionalism in technical education, as presented here, is partially derived from this assumption.

Professional and Employment Concerns: The Need to Keep Them Separated

The professional concerns of technical education faculty deal with

---

[1]This presentation and others by Dr. Gillie not reprinted here -- The Middle Level Worker in Society: Characteristics of the Paraprofessional; Student Characteristics; Selection of Faculty and Administrators were drawn from Gillie, A.C., Principles of Post-Secondary Vocational Education, Columbus: Charles Merrill Publishing Co., (in press).

those matters related to improvement of instruction and the betterment of their students. It should be noted that faculty wages, fringe benefits, and other unionistic type matters are not considered to be professional concerns in this paper. This is not to disparage the importance of such matters, but only to put them in their proper prospective as employment rather than professional concerns. Faculty members need to view themselves as holding dichotomous sets of roles. First, there are those professional elements relating to the improvement of instruction and student welfare, and secondly, those elements concerning faculty welfare and other employment related topics. The former concerns are best served by approaches such as pre-service and in-service preparation of teachers in both specialty course work and technical education topics, faculty participation in associations concerned with these matters (such as the AVA), keeping up to date in one's own field by selected readings, visitations, conferences, and discussions. The professional set of roles for the faculty urges teachers to always strive toward improvement of the instructional processes so as to provide increased benefits to the students. The later set of roles, concerning faculty employment and conditions relating to it, are most appropriately dealt with in other kinds of organizations whose primary goal focuses upon teacher salary and improvement of employment conditions. Although these are indeed important matters, they should be kept out of the classroom, where the professional set of teacher roles should reign completely.

In terms of their professional concerns, the faculty should pay continuous attention to course content. Course offerings must have optimum relevancy for students in terms of their social and occupational development. In order to maximize this, an effective coupling between the student, and his social and work world must be provided within each curriculum, with the faculty serving as the bridging agent. As indicated in the preceding statements, besides preparing the individual for an occupation, the development and improvement of social skills is an equally vital aspect of job preparation. Such an approach would prepare the students to socially deal with other persons, both at work and during his leisure hours, in a positive manner, and thereby improving his chances of developing a happy and healthy life style. The humanistic aspect of technician preparation should be considered a primary professional concern of technical education faculty.

Technical Education Administrators: Their Professional Concerns

How does the administrator fit into all of this? The administrator is to serve as the provider of tangible things needed by the faculty to perform their professional duties. Therefore the administrative objectives should focus on doing those things that better enable the faculty to achieve their professional objectives. The professional roles of the administrator include: a) serving as the change agent for curriculum modernization and the introduction of new ideas and practices; b) providing facilities, equipment, and other instructional needs of the faculty to as great an extent as possible; c) serving as the agent

for coupling programs and the world of work; d) providing encouragement and tangible support for activities which facilitate professional faculty growth; 3) serving as the agent to articulate people into and out of the curriculums with maximum benefit for the students; f) serving as an interface with the public at large for technical education.

The Professional Concerns Common to Faculty and Administrators

The two preceding sections point to an obvious commonality in the professional concerns of faculty and administrators in technical education. Although what needs to be done by each of these groups is different, they share the same large goal--to provide the optimum social and occupational preparation for technicians. Having common professional concerns results in faculty and administrators performing professional activities that are complementary. The role of the faculty is to establish learning situations that result in sound preparation of technical education students, while the administrator's role is to provide whatever assistance by various means that increase the faculty's chances of achieving their objectives. Therefore, at the professional level, the concerns of administrators are actually parlayed with those of the faculty for the overall benefit of students. If administrators and faculties are in separate camps in technical education, it is only in the halls of negotiations for wages and other employment interests. True professional will continue to keep it that way.

The Place of Professional Associations

One of the major mechanisms for the promotion of professionalism in technical education is the professional association. State affiliates and local branches of state affiliates of a national association, can be effective in providing workshops, conferences, and other learning experiences essential for professionals.

The Technical Education Division of the AVA, which is now almost four years old, offers a rich variety of more than a dozen presentations each December at the National AVA Conference. In addition to the national effort, many state level affiliates conduct conferences and workshops of their own with themes that relate to the professional roles of vocational educators. There also are places where local or regional sections of the state affiliates perform the same kind of professional services for more localized groups.

As a Vice-President of the AVA and a technical educator, I see the AVA as the foremost professional association for technical faculty and administrators. I urge you to join us, and invite your professional associates to join us, in a common endeavor to improve technical education.

ADULT LEARNING AND EDUCATION APPLIED TO THE TWO-YEAR COLLEGE

Harvey L. Sterns and Dale G. Romanik
Department of Psychology
The University of Akron

Introduction

A major thrust of two-year colleges and technical schools has become the training or retraining of adult students. Currently, we are seeing a movement to make the two-year college a center of education for older adults of our society. Services to adults of all ages include outreach activities aimed at bringing adults to campuses, counseling and guidance in employment, educational and volunteer opportunity, information-referral activities designed to link adults with adult services and continuing education programs.

The movement away from education at specific points in the early part of the life-span to education throughout the life-span is supported by the growing numbers of adult enrollments in full-time, part-time and evening programs. Birren and Woodruff (1972) and Baltes and Labouvie (1973) have recently stressed the need for education to become a life-long endeavor. Education can facilitate the continuing development of the individual to meet the challenge of our fast changing social and technical milieu. Education must also be viewed as a very positive form of recreation as leisure time increases for the individual. The growth of adult education over the last fifty years with special emphasis on the two-year college has been discussed in the excellent review by Koos (1970).

Principles of learning are helpful in shaping the direction and improvement of curriculum design and instructional method (Bugelski, 1971). The research base to facilitate this process has been far from definitive once we have gotten outside the laboratory. An attempt will be made to review suggestions that will facilitate instructional methods based on adult education research.

One problem that must be considered is the false stereotypes regarding the intelligence and learning abilities of adults and older adults. A brief review of current opinion and research will be presented.

Our major concern focuses on those aspects which relate to participant and drop out factors, academic achievement and assessment and evaluation in adult education.

Intelligence and Learning in Adulthood

Intelligence implies both a potential and an actual ability. In practive, however, we deal with measured abilities. The use of traditional global measures of intelligence such as I.Q. have been found to be ill

suited for developmental analysis. A multi-dimensional approach to intelligence has been found to be useful since it has been found that different dimensions (factors) of intelligence differ in their developmental functions over the life span. (Botwinick, 1967; Horn, 1970, Baltes and Labouvnie, 1973).

A very good example is the different ontogenetic trends found for fluid and crystallized abilities (Cattell, 1963; Horn, 1970). Fluid intelligence includes logical reasoning, associative memory and figural relationships. It is a global intelligence present at birth. It is measured by culture-fair perceptual and performance tests and by specifically developed tests of judgment and reasoning which have been considered relatively culture free. One major characteristic of Fluid Intelligence is that it leads to perception of complex relations in new environments. Crystallized intelligence is thought to be the result of all that a person has learned in a given culture. Crystallized intelligence includes verbal meaning (vocabulary), numerical ability, mechanical knowledge, well stocked memory and habits of logical reasoning. Crystallized intelligence is high on the subtests that are built into traditional I.Q. tests such as vocabulary size, analogies and classification involving cultural knowledge of objects and problems.

Research studies (see Horn, 1970) indicate that Fluid Intelligence exhibits a pattern that closely matches the growth and decline of biological processes, i.e. a steady decline from early adulthood onward. Crystallized intelligence, which is principally dependent upon learning and acculturation, is assumed to show an increase all through adulthood and showing only slight if any decline in old age. Thus, if we talk about decline in intelligence with age we must ask what aspects.

Results from cross sectional studies of traditional I.Q. test such as the Wechsler Adult Intelligence Scale have tended to show declines in intelligence from early adulthood. Botwinick (1967) in his analyses of a large number of cross-sectional studies using the WAIS concluded that performance subtests exhibit a greater decline than verbal subtests. This finding tends to support the Crystallized-Fluid distinction discussed above. (For reviews see Botwinick, 1967; Horn, 1970; Baltes and Labouvie, 1973).

Conclusions about general age decrements and different age functions have also been seriously challenged by the great differences found between cross-sectional and longitudinal studies. Cross-sectional studies of intelligence produce age functions indicating earlier performance decrements. Longitudinal studies suggest maintenance and stability into late adulthood (Schaie and Strother, 1968; Jarvik, Eisdorfer and Blum, 1973).

Schaie (1965) and Baltes (1968) have both offered models to deal with the differences in cross-sectional and longitudinal results. The focus of their argument is that cross-sectional studies sample age groups from different generations (cohorts). Members of different generations may differ as to their genetic background and experiential background such as education, health and nutrition. Thus differences between cross-sectional groups can be due to age or be due to differences related to specific generation membership. A good example here would be the great changes in

education that have taken place in the last seventy years. Cross-sectional group differences could be due to age difference, differences in education or both. Longitudinal studies use the same generation and test the same subjects on a number of occasions. Thus changes between time of testing must be due to aging or to some experience that occurs between repeated testings. Longitudinal studies of intelligence have found either no decline or much smaller decline than found with cross-sectional testing. What appear to be declines in intelligence may reflect changes in skills and environmental input emphasized by the culture over time.

Related to the above considerations is the fact that our cultural milieu has different expectancies and demands for adults and older adults. Baltes and Labouvie (1973) have pointed out that in our culture there is little reinforcement for good cognitive behavior for older adults. Changes in intellectual and learning abilities may well reflect lack of reinforcement and disuse. Intervention strategies have been quite successful in increasing scores on intelligence tests (Sterns, 1972).

The question can be raised regarding what all this research means and what about its meaning in real life situations. Clearly the research studies call into question the popular notion of decline in intelligence with age. Atchley (1972) in summarizing this research feels that such age related decline in measured intelligence probably has little to do with performance in everyday tasks. It is felt that unless there is an extensive decline in intelligence, such factors as persistence, responsibility, group pressure, etc. may compensate for changes in intellectual functioning.

A similar kind of analysis can be applied to learning research in terms of differences in learning resulting from generational change as well as aging. (Goulet, 1972). Learning refers to the acqusition of information or skills. Improvement of performance on a given intellectual or physical task indicates learning.

There are a number of factors other than learning ability which affect performance. These include motivation, speed, physiological states and sets. It is extremely difficult to separate the components of performance from learning. A major trend in learning has been to investigate the non-learning factors which vary systematically with age (Botwinick, 1967, 1970; Goulet, 1972; Arenberg, 1973). Inferior performance in laboratory learning situations has been ascribed to the inability of older adults to respond in short intervals of time. Also there are age related changes in the spontaneous use of mediational techniques which assist learning. It is concluded that a good deal of decline found in learning in the laboratory situation is in large part due to performance factors. Intervention strategies as with intelligence have been found to be extremely effective (Sterns, 1972). Thus, although there are declines in learning ability to some degree there is much that can be done to provide optimal learning situations. Performance factors may influence learning in the laboratory but there is some question regarding how much effect this would have in the classroom situation. Birren (1964) has indicated that there is little evidence to suggest that there is a great deal of change in learning capacity over the major part of the life-span.

It would thus appear that there is little reason to suppose that adults and older adults could not benefit for extended periods of education throughout the life-span. There are many additional factors which must be considered regarding motivation and attitude which perhaps play a decisive role in whether adults continue in educational endeavors.

Participant and Drop-Out Factors in Adult Education

The research to be dealt with in the present and subsequent sections primarily deals with adult continuing education. The lack of research in the area of participant factors and the junior college student necessitates such borrowing of data from a related areas. Therefore, one is cautioned against sweeping generalizations concerning inferences from this data to a junior college sample

Douglah (1963) provides a sketch of the typical continuing education student. The student is generally young, married with children, well-educated, a full-time employee in a white collar job, secures above average income and lives in an urban area. In addition, Douglah describes the typical nonparticipant in a similar manner. This individual is typically older, does not have a high school education, is below average concerning socioeconomic status and lives in a rural area.

This description is intended to be only a general frame of reference and not a blanket statement. In view of Chapman (1959), students exhibit a wide variation in personal characteristics to make such descriptive pigeon holing, functionally meaningless.

The overall conclusion from previous research is that the single most precipitating influence determining participation is the level of formal education attained by the individual. In other words, as the previously attained educational level increases, participation also increases. Therefore, the most significant factor discriminating between participants and nonparticipants is the extent of educational background.

However, when controlling for or cancelling out the effect of previous educational level, Douglah concluded that in and of itself this factor does not completely account for participation. Controlling for the level of education eliminates the influence of the majority of factors typically found to be related to participation with individuals having more than a high school education, but does not do so for individuals having less than a high school education. Variables such as age, place of residence, income and employment status remained influential when education was controlled for individuals with less than a high school education, but had no effect in persons with a higher educational level. The effects of such variables in the low education group was that, with increasing age participation declined, those with higher paying jobs tended to participate more and urban residence participated more than rural residents.

Douglah, proposes that the participation of individual with low and high levels of education cannot be accounted for by a single variable,

but rather two sets of variables are required. The motivational factors for those persons with less than a high school education are economically based. Whereas the motivational factors for individuals having more than a high school education are essentially directed toward self-actualization or self-fulfillment i.e. enriching one's life. These two orientations, economical and self-actualization coincide with the findings that, variables such as income and socioeconomic status were important determiners for individuals characterized by the former orientation but were not predictive for the latter.

Examining another participation research endeavor, Seaman and Schroeder (1970) attempted to determine whether one's attitude toward education either facilitated or inhibited their participation in educative behavior. The study in question utilized a social psychological framework which proposed that an individual desires congruence or correspondence between his attitudes and his behavior. In addition if circumstances in the immediate situation interfere, compete, or are in opposition to a long held attitude, the behavior is likely to be inharmonious with that attitude.

Results indicated that even though the S's attitude toward continuing education was of a positive nature, they did not participate to that extent which would be predicted by their attitudes. Stated differently, the S's attitudes were incongruent or disparite with their overt behavior. The authors concluded that, there was some interferring factors in the immediate situation which lent the individual's attitudes, to that situation, ineffective in producing the congruent overt behavior, participation. The task of determining the nature of these interferring circumstances was relegated to further research. Therefore, it might be enlightening to consider research on why individuals drop out of or discontinue attendance in adult education programs.

Dickinson and Verner (1967) analyzed average daily attendance (ADA) patterns of 2,075 individuals enrolled in 98 courses offerred by a public adult education program. Two types of factors were tested, situational and personal to determine whether they differentiated between dropouts and those who completed their respective course. Situational factors included, subject matter, which was divided into three areas: 1) academic subjects such as history and mathematics, 2) vocational such as, bookkeeping and welding, and 3) general interest including, public speaking and gift wrapping. A second situational factor, length or duration of the course, likewise was divided into three subgroups: 1) less than 10, 2) 11-20, and 3) greater than 20 sessions.

The second factor tested, personal factors, consisted of age, marital status, number of children, years of formal education, previous participation in continuing education programs and occupation.

ADA patterns were made available to the authors from the instructor's attendance records, and indicated a mean value of how many students were in attendance throughout the duration of the course. A dropout was defined as any participant who discontinued attendance prior to the last two sessions of their respective course.

Results indicated a rather discouraging but relatively systematic picture of attendance. Of the original 2,075 participants 29 per cent or 577 failed to complete their course. The ADA patterns are relatively systematic in that variation in such patterns depended upon the two factors tested, situational and personal.

Within the first situational factor, subject matter, general interest courses consisted of 60 per cent of all participants and tended to maintain the highest ADA (70 per cent), 22 per cent enrolled in such courses discontinued but these accounted for 48 per cent of the total dropouts in the entire population studied. This was the greatest percentage of dropouts but it was proportionately less than in the other types of courses, because general interest courses accounted for the largest percentage of the total enrollments. Academic courses consisted of 14 per cent of all participants and tended to maintain the lower ADA (53 per cent), with 39 per cent enrolled in such courses discontinuing and accounted for 20 per cent of the total dropouts. Vocational courses comprised 26 per cent of the total enrollment but was intermediate concerning ADA (64 per cent), with 35 per cent of vocational enrollees dropping out and these students accounted for 32 per cent of the total number of participants discontinuing attendance.

Therefore, there were significant differences among the three course categories concerning dropout rates. One is thereby tempted to conclude that the specific content of the course directly influenced attendance. However, the authors caution, that the data do not permit a conclusive statement concerning a single specific factor influencing the differential attendance. They suggest that several variables are probably operative in producing persistance such as, course objectives, instructional procedures, motivation, and content, but not content alone.

Within the second situational factor, length of course, subject areas consisting of ten or less sessions, accounting for 33 per cent of the total enrollment, maintained the greatest persistance with only 10 per cent of the students enrolled in such courses discontinuing, which accounted for 12 per cent of the total dropout. The percentages for courses of 11-20 and greater than 20 sessions are 37, 33, 44, and 30, 41, 44 respectively.

Therefore, these findings suggest that in addition to subject area, the length of the course was significantly related to attendance. As duration increases, attendance or persistence tends to decrease.

Among the situational factors the following results were obtained. The younger the participant the more likely he was to dropout. Those students between 15-24 years of age were most likely to discontinue attending classes. Married participants were less likely to dropout than single students. The more children a participant had the less likely he was to dropout. However, there seemed to be an upper limit to the number of children which facilitated participation. Those with five or more children showed a tendency to dropout more than those with four or less.

The fourth situational factor, extent of formal education did not significantly distinguish between dropouts and completers. However, when the educational level of those who persisted and those who dropped out was compared with the length of course, a significant difference did result. Participants with some college tended to dropout of short courses more often but less often in courses of 20 sessions or more when compared to participants with 9-12 years of school. In addition, those with less than nine years of schooling had the lowest dropout percentage of all participants for the two shorter length categories but tended to dropout out of the longest courses most often.

Those individuals who had previously participated in adult education (49 per cent) tended to drop out less than those participants for the first time (51 per cent). In addition, of those students dropping out 58 per cent were participating for the first time. Housewives tended to dropout less than any other occupational group. In addition, housewives constituted the largest group (41 per cent) of participants in the program. In general interest courses housewives had the lowest dropout rate than in any other course category. Retired individuals and students, (taking courses in another program), those with no occupation dropped out more from general interest courses than did those with jobs. Professional, managerial and technical participants dropped out of academic courses more than general or vocational subject areas.

The research of Dickinson and Verner have many implications for the adult educator, of which our attention will be directed to only a few. Sporadic attendance and discontinuance are difficult problems that all educators must deal with. This research points to the curriculum administrator particularly and how he might circumvent such problems. The relevance of curriculum modification is quite obvious, in view of the finding that rarely is the initial enrollment in adult programs maintained through termination of the instructional period. Evidence of this "fact" is supplied by the present study, which showed approximately 30 per cent of the initial enrollment was lost.

To increase the holding power of long adult courses, Dickinson and Verner suggest sectioning of such classes. In sectioning, the course may be divided into a successive series continuing from one registration period to the next. This is suggested in lieu of the finding that shorter courses led to fewer dropouts. In addition, the number of general interest courses may be increased again in order to facilitate persistance. Additional recommendations will be proposed following analysis of several more research endeavors.

Hurkamp (1969), analyzed attitudes of completers and dropouts in a suburban adult education program. Dropouts were low on attitudes like, expectation of success, expectation of personal gain, values placed on education and the burden placed on their family. The dropouts were high on attitudes like, expectation of course difficulty and lack of preparedness for their respective courses. In contrast, completers generally maintained a relatively high expectation of success and potential personal gain, while exhibiting considerable concern for the possible adverse

effects on their families resulting from attending classes. One may infer from these findings that dropouts have a pessimistic set or expectation concerning education. One possible source of such a negative set can be found in unfulfilling early experiences with educational activities.

Chapman (1959), provides considerable information concerning differential participation in three levels of adult education, the junior college, public high school and university extension program. Younger adults primarily enrolled in junior college courses, while older adults preferred university extension and the public school programs. Concerning previous education attainment, 80% of those enrolled in the university extension program had college degrees, 10% of those in the junior college program had such degrees. The typical participant in the public high school program had less than or equal to a high school diploma. The findings are similar to Brunner (1959), depicting education as a life long process. This author concluded that the public school adult program served more people with less than a high school education; those enrolling in university extension classes have an above average amount of education and junior college programs attract individuals of educational status midway between the public school and university adult programs. Concerning the student's aspiration toward degrees, a low proportion enrolled in the high school program, 25% in the university extension program and 50% in the junior college program aspired toward a degree. Turning next to the occupational status of students enrolled in each type of adult programs, Chapman found, homemakers comprising 50% of enrollment in the high school program, 14% of the junior college and 5% of the university extension programs. Craftsman, foreman and similar types of occupational groups comprised 10% of high school, 25% of junior college and .3% of university extention enrollees. Professional and technical workers made up approximately 10%, 20% and 85% of high school junior college and university extension enrollment, respectfully.

Chapman concludes that the reason adults return to part-time schooling is "not a chance event...but is determined by the individuals' dissatisfactions" and that adults "look at education as a means of resolving their dissatisfactions and as an aid to realizing their aspirations."

We may now return to recommendations proposed to circumvent the high (typically 30% of initial enrollment) attrition rate observed in educational programs for adults. Several recommendations are cited by Hurkamp (1969), who has found differences in initial attitudes of students who completed and those who dropped out in the adult program studied.

Publicity materials should include, in addition to course descriptions, time and place of meeting, etc., information concerning the preparation required and differences in the manner of course operation for adults as opposed to how it has or will be operated for other types of students. Orientation programs geared to the specific program and adult student should include concise specifications of what is expected of the students so that the courses will not be regarded as too difficult

or requiring skills beyond their capacity. In addition, it is recommended that reliable attitude instruments be used to select potential dropouts in view of the fact that many adult programs have a maximum and minimum number of students required before the course can be undertaken or before the class will be closed. If enrollment falls below the minimum, dropouts may initially prevent other students from being able to enroll. And, in addition, they may necessitate the closing of a class once it has begun if the enrollment falls below a minimum number forcing the remaining students to wait until the course is offered again. Those students selected as potential dropouts should be counseled with discussions centering around the recognition of negative attitudes and the elimination or modification of such attitudes and acknowledging home problems resulting from attending classes, and realistic potential gains from attending.

For older adults the "school" itself may be anxiety provoking so that changing the location of the meetings may facilitate persistence. A related suggestion concerns program modification when it is indicated that the program in its present form is too imitative of previous educational experiences. Since many adults have had negative school experiences constructing a program which is to some extent remote from that experience may likewise reduce attrition. One example for such a modification might be to eliminate grades for adult students since educational competition is undesirable for such students. Finally, the most critical recommendation requires a change in set of the administrators and instructors in adult education programs primarily that the adult learner <u>can</u> learn. Again, like any other form of discrimination age discrimination has no place in our society, especially in our educational institutions. The fact that older adults can learn and that learning disabilities are far less frequent than the general population assumes has been discussed in some detail in preceding sections of this chapter. So that it only remains to be stated that the adult educator must keep this in mind when instructing or constructing curriculum programs for adults.

Factors Affecting Academic Achievement of Adults

The following section will deal with research concerning personality characteristics, attitudes, motivations, perceptions, and study skills which hinder academic achievement of adults. Considering the lack of research in this area, the reader again is cautioned against sweeping generalizations from this data primarily concerned with adult basic education to the junior college student.

Puder and Hand (1968) considering the self-concept of the culturally deprived learner, distinguished between an "Open self" and a "Closed self." Landsman (1962), defines this hypothetical adjusted individual as the Open Self, "a man who is free of his past, free of forgotten trauma, free of threatening groups." This well-adjusted person approaches novel situations enthusiastically and does not fear failure. He has an "open mind" because he has discovered learning is important to his self. The Closed Self is defined by Landsman as, "constructing, rejecting, fearful of anything new, anticipating failure and avoiding new experi-

ences." Landsman continues, "A series of threatening, frightening school years constructs and closes the self, develops feelings of self-worthlessness and continues the vicious circle of avoidance of learning." Therefore, the open mind seeks learning experience while the closed mind interferes with the learning process. The disadvantaged individual who cannot benefit from education in its present form is characterized by a closed mind. The development of such a hinderance to learning follows from negative past experience in educative behavior.

Rokeach (1960), similarly has distinguished between the open and closed mind. Rokeach defines the Closed mind as "a closed way of thinking,...and authoritarian outlook on life, an intolerance toward those with opposing beliefs, and a sufferance of those with similar beliefs." The Open mind results from a need for a cognitive framework around which to structure the environment. Conversely, the Closed mind results from a need to ward off threatening elements in the environment. What is actually being said here is that the Closed mind is a complex of cognitive defense mechanisms such as repression, rationalization, denial, projection, etc. It is then quite obvious that the learner's self-concept or the manner in which one structures reality significantly effects one's learning ability.

Landsman contends that, "learning ... is determined, influenced, and distorted by the (learners) view of Self." Learning is rapid when the to-be-learned material is congruent with one's concept of Self. In addition, learning which is related to negative aspects of self is ignored or actively avoided. An example of this was demonstrated by Seaman and Evans (1962), who found that tuberculosis patient's with a high sense of alienation or powerlessness (characteristics) of the closed self system) did not learn as much concerning their illness, and hospital life as those patients with low alienation scores.

Another personality characteristic of the adult basic learner that might interfere with his learning concerns Dollard and Miller's (1950) hypothesis of "gradients of approach and avoidance." Following this hypothesis one's avoidance of a feared stimulus, education in this case, is stronger the closer one is to the stimulus. This seems to account for the severe resistance met when retraining the disadvantaged.

"Hostility and anxiety toward authority" is a third characteristic hindering adult achievement. Taylor (1964), contends that this characteristic typifies the "low achiever," and that the "degree to which a student is able to control his anxiety is directly related to his level of achievement and the student's ability to conform to and/or accept authority demands will determine the amount of academic success."

A fourth characteristic of the Closed mind is "withdrawal." Erikson (1961) defines withdrawal as "the excluding of all sense of social solidarity ... and leading possible to snobbish isolation ... withdrawal and the closing of the mind to certain unfavorable aspects of the environment, is an adaptation ..." Therefore, withdrawal inhibits

learning because it constricts one's life space thereby reducing the possible amount of stimulus input.

Puder and Hand mention other characteristics, but the above will suffice for our purposes. In conclusion then, many adult learners are characterized by a closed self which tends to interfere with the learning process by ignoring intellectual development resulting from years of negative experiences in school. The self-defeating personality characteristics observed in many adult illiterate learners include, alienation, avoidance, hostility toward authority, withdrawal, fear of schools and rigid value systems.

Considering attitudes which interfere with adult's learning ability Zahn (1969), concluded from a review of the recent research that adults with a strong feeling of powerlessness fail to learn relevant information. In addition, if a strong need conflicts with the to-be-learned material, that material is not learned. The first conclusion stems from Seeman (1953), who was discussed earlier, and by studying tuberculosis patients found that those who scored high on a scale designed to measure feelings of powerlessness found it more difficult to learn the information presented, while those who had more confidence in their ability to control their surroundings learned more material concerning their disease.

Zahn's second conclusion concerning conflicting needs stems from Spelman and Ley (1966), who studied non-smokers and heavy smokers concerning their knowledge of the medical facts concerning lung cancer. Heavy smokers and non-smokers did not differ significantly concerning such knowledge except when questioned as to the probable outcomes of lung cancer. The heavy smokers learned less about the probably outcomes and their responses were in an optimistic direction yielding support for their habit.

Larson (1970), in his review cites several interesting characteristics affecting adult achievement. First, adults learn more effectively in non-competitive situations where performance is not compared and a minimum of tests are administered. Secondly, punishment and threatening instructions inhibits learning in adults more than in children, Thirdly, the anxiety level in novel learning situations is higher for adults, primarily because, "their dignity is at stake." In addition, anxiety levels of adults are generally more than high enough to maintain their drive to success. Illustrating this point is a study by Haines and McKeachie (1967), who by comparing anxiety-provoking capacity of several traditional teaching methods found that tension resulting from competitive class discussions and competitive grading systems combined with already existing high levels of anxiety yielded adult performance inadequate for the task studied.

Larson concludes that adult educators, "must keep in mind ... (the adult learners) anxiety about new learning situations and his aversion to evaluation and comparison with others." However, no alternative assessment methods are advanced.

Considering next the motivations for adults returning to school Chapman (1959), found economic improvement to be the most frequent single reason for attendance. Sixty-three per cent enrolled in a university extension program were motivated by economic reasons, 45% in a junior college and 20% in the high school programs were likewise motivated by financial considerations. The desire to learn leisure time skills was more frequently reported in the high school program, 25% of such students were attending for this reason. The desire to learn social skills such as dancing and improving one's personality likewise ran higher in the high school program; 10% of these students enrolled to improve such skills. Only 4% in the junior college and 0% in the university extension programs attended in an attempt to enrich their social skills. Cultural and intellectual pursuits were desired by 17% of the junior college enrollees; 12% enrolled in the high school and 12% in the university extension programs.

Referring back to Douglah (1968), discussed in the preceding section one may infer from the above data that a high school adult program attracts students primarily characterized by a self-actualization orientation. While the university extension and junior college programs primarily serve those characterized by an economic orientation since 63% and 45% respectively, enrolled to advance their financial status. In addition, Koos (1970) suggests that the junior college serves as the coordinating agency for all adult programs offered in the community. Therefore, the junior college can be seen as a very significant institution serving many varied interests and the center of adult education as well.

Before concluding this section two additional factors affecting adult achievement must be discussed. The first concerns the admission policies, study facilities and financial policies of the various institutions serving adults. The second concerns the actual academic competence of adults.

Beagle and Melnyk (1971), discuss several obstacles that hinder adult enrollment in the university extension program. Aptitude tests designed for regular secondary school applicants and employed as screening sevices for adults seem inadequate but as yet nothing better has been divised. Admission policies not usually being sufficiently publicized and constantly changing hinder the adult's knowledge of such policies. In addition, some universities have quotas and age restrictions. One such restriction observed in several universities was the prohibition of part-time students from attending day classes. Other universities had additional discriminatory practices affecting part-time students. One university cited by Beagle allows two failures for full-time but only one failure for part-time students before dismissal is initiated. The adult students studied also reported that the academic counseling available to them was inadequate and that they received more effective counseling from upper class students. The counselors seemed unaware of adult needs and lacked knowledge concerning vocational planning. Faculty interviews revealed that the adult students were deficient in study skills primarily concerning research papers and oral presentations, but there

was usually no additional assistance available to the adult student in this regard. An additional discriminatory practice observed in several universities concerns student financial assistance. For example, most fellowship and scholarship donors specifically designate that recipients of their assistance must be full-time students and rarely are older students even considered for such aid. Adult students reported that they had the most difficulty with study facilities. Most adults interviewed mentioned restritive library operations as a major source of such difficulty. Library loans and reserve policies are set up for full-time day students neglecting those students taking one or two courses per week. The inaccessibility of all university facilities on weekends or lack of night hours further enhanced the adult's problem of securing sufficient study facilities.

One is forced to conclude, when considering these discriminatory and restrictive policies, that many universities themselves block the adult's opportunities for education.

Turning now to the question of adult academic competence Beagle (1971) concludes, "...in spite of the low expectations about their academic performance held by faculty, and often by the students themselves, the record of attainment of older students is surprisingly and consistently high." Chapman (1959) administered a 20-item scholastic aptitude test produced by the Educational Testing Service, which correlates high with the ACT and SCAT, to non-college, college-going adult part-time students enrolled in a junior college program and adults in a high school program and full-time day junior college freshmen. The results indicated that the adult junior college students compared favorably with the college-going national sample. The national norm was 9.04, the adult part-time junior college student averaged 12.05, those adults enrolled in the high school programs averaged 9.86, college students 11.96 and non-college S's 7.75. As one can see from the above data the mean for even the adults enrolled in the public high school was greater than the national norm.

Koos (1970) contends that a major hinderance to adult academic competence concerns deficient reading ability. A classic study by Buswell (1937) revealed a high correlation between last grade attended and reading ability. These results suggest that adults having reading deficiencies actually gain little from adult education unless the material is sufficiently simplified. Therefore, there is an urgent need for courses to improve reading skills for some adults. Koos reports a study by Gray interested in the national prominence of illiteracy, it found that one-half of the adult population read below the 9th grade level and one-third were "functionally illiterate" which means they were unable to read at the fifth grade level. However, recently there has been a consistent increase in reading ability throughout the general population thereby yielding adult education more feasible for a larger portion of the population.

Koos (1970) concludes, "... the ability of adults enrolled in college-credit courses is usually on a par with that of students of normal age

for these courses." He continues, "... adult's performance is typically as good as or even better than normal aged students." It is therefore unproductive for the adult educators to assume that the older students' competence is below average. This assumption may even lead to a self-fulfilling prophecy producing pessimistic expectation from the adult student himself.

Assessment Techniques and Evaluation in Adult Education

Assessing educational achievement began almost 4,000 years ago. Records of the Shun Dynasty of ancient China report an elaborate system of such achievement tests. In the beginning of this century assessment became a "science" and it continues to be a prominent aspect of today's education as well.

One of the more recent innovations in assessment techniques is the pass/fail grading system. The letter P usually represents levels of achievement from A+ to D-, and F designates a failure to acquire the material presented. Daiger (1971), found of the 261 beginning high school typing students studied, 68 elected to take the course pass/fail. Others felt grades were needed as a challenge to facilitate their work. No evidence was found that those selecting the pass/fail option worked any less than those opting for the conventional system. Many educators report that those taking their course pass/fail actually, to their surprise, earn grades considerably above the minimum D-. Daiger concluded that, "(students electing pass/fail) are more relaxed and seem pleased to have the choice in their grading system.

It would, therefore, seem plausible and desirable to institute such grading systems into adult classes. Taking into account the adult's aversion to academic competition and their sufficiently high anxiety level, such grading systems would release considerable amounts of energy commonly employed for anxious worrying. This surplus energy could then be employed for enthusiastic intellectual pursuits within the classroom.

It has been commonly asserted that assessment techniques and the conventional grading systems fail miserably to accomplish their task. In the following portion of this section, evidence supporting this view will be reviewed in a variety of educational setting, including the culturally disadvantaged individual seeking retraining.

Hoyt (1966), reviewing the research concerning the relationship between college grades and adult accomplishment concludes, "College grades fall far short of being comprehensive measures of professional promise or competency." This conclusion was based on a synthesis of research findings concerning studies related to success in business, teaching, engineering, medicine and scientific research contributions.

Concerning business these studies found no relationship between the criterion of success, salary and undergraduate gradepoint average (GPA).

Two additional endeavors conducted at the American Telephone and Telegraph Company using salary as the criterion, found a positive relationship between this criterion and college standing. Two other studies, one using a success rating as judged by former classmates and the other using ratings on eight empirically derived "elements of success" in general business as criteria likewise failed to find any significant relationship. As can be seen the criteria used to measure success is a problem in such research. However, Hoyt concludes, "the majority of these studies yielded no evidence that college GPA was related to any aspect of business success."

Success in teaching has received the most consideration (12 studies) and these studies usually employ supervisory ratings of teacher performance as the criteria. These studies revealed that neither overall college grades nor specific course grades were significantly related to any measure of success in teaching. Similarly five studies relating success in engineering to GPA likewise failed to predict vocational success.

Concerning success in medicine undergraduate GPA was not related to any criterion measures. For young physicians, however, medical school grades were related to success. But for experienced physicians, academic achievement was not related to professional performance. Finally, there was likewise no correlation between success as a researcher and undergraduate GPA. Similary, GPA was not related to civic participation, social activity nor home life satisfaction. However, a very important and significant correlation was found between GPA and additional education. Therefore grade averages appear to be closely related to further schooling but not to actual on the job performance. Hoyt suggests, in light of his findings, that the "meaning of grades needs to be empirically established: and that alternative assessment techniques should be initiated.

Regarding actual tests designed as screening achievement instruments Rutledge and Gass (1967), have criticized such tests for use with the culturally disadvantaged individual enrolled in a retraining program. Their book Nineteen Negro Men describes an experimental program for 19 previously unemployable Negro Ss enrolled in a practical nursing retraining program. The state board exam for nursing indicated only seven men would be successful on the job. Actual job performance indicated 11 men were successful. Rutledge and Gass conclude:

> "The continued inability of this disadvantaged population to respond to tests was also clearly highlighted by the follow-up study. They obviously knew the material in which they were tested by the State Board, as judged by their use of it successfully in job performance, but they could not translate this knowledge in a testing situation. It may be that tests, no matter how benignly given, are not valid in evaluating their performance." p. 98

The authors continue:

> "More and better tests do not appear to be the answer to the problem of the selection of trainees. For many of these

> (disadvantaged) people, the most difficult part of testing is not the content of the tests, but the very fact that they are being tested. If the requirements of a particular program dictates that tests be employed in selection purposes methods will have to be employed to reduce tension associated with the testing process." p. 99

Therefore, due to a life long history of academic failure the culturally disadvantaged (and a large part of the general population) have acquired negative feelings toward tests and education in general. The lack of opportunities, discrimination, the fear of success, the closed mind, lack of adequate adult models in childhood, hostility toward authority and the identity crises observed in many students does not synthesize well with education. The adult educator is once again alerted to the fact that these potentially hazardous personality characteristics affect learning and they must be considered in curriculum as well as evaluation program construction.

References

Arenberg, D. Cognition and aging: Verbal learning, memory and problem solving. In C. Eisdorfer and M.P. Lawton (Eds.), The Psychology of Adult Development and Aging. Washington: American Psychological Association, 1973.

Atchley, R.C. The Social Forces in Later Life. Belmont: Wordswoth Publishing, 1972.

Baltes, P.B. Longitudinal and cross-sections sequences in the study of age and generation effects. Human Development, 1968, 11, 145-171.

Baltes, P.B. and Labouvie, B.V. Adult development of intellectual performance: description, explanation, and modification. In C. Eisdorfer and M.P. Dawton (Eds.), The Psychology of Adult Development and Aging. Washington: American Psychological Association, 1973.

Beagle, P., & Melnyk, W.T. Factors affecting academic achievement of adult students. Continuous Learning, 1971, 10, 71-78.

Birren, J. The Psychology of Aging. Englewood Cliffs, N.J.: Prentice Hall, 1964.

Birren, J. and Woodruff, D. The development of man over the life span through education. Paper presented at the conference Life-Span Developmental Psychology: Personality and Socialization, West Virginia University, 1972.

Botwinick, J. Cognitive Processes in Maturity and Old Age. New York: Springer, 1967.

Botwinick, J. Learning in children and in older adults. In L.R. Goulet and P.B. Baltes (Eds.), Life-span developmental psychology: research and theory, New York: Academic Press, 1970.

Brunner, E., Wilder, D., Kirchner, C., & Newberry, J. An overview of adult education research. Chicago: Adult Education Association, 1959.

Bugelski, B.R. The Psychology of Learning Applied to Teaching 2nd Edition, Indianapolis: Bobbs-Merrill, 1971.

Buswell, B.T. How adults read. Supplementary Educational Monographs, no. 45, Chicago: University of Chicago Press, 1937.

Cattell, R.B. Theory of fluid and crystallized intelligence: A critical experiment. Journal of Educational Psychology, 1963, 54, 1-22.

Chapman, C.E. Some characteristics of adult part-time students. Adult Education, 1959, 10, 27-41.

Daiger, R. Will pass/fail pass the test? Today's Education, 1971, 60, 24.

Dickinson, G., & Verner, C. Attendance patterns and dropouts in adult night school classes. Journal of Adult Education, 1967, 19, 24-33.

Dollard, J. & Miller, N.E. Personality and Psychotherapy. New York: McGraw-Hill, 1950.

Douglah, M. Differential participation patterns of adults of low and high educational attainment. Adult Education Journal, 1968, 18, 247-259.

Erikson, E. Youth: Fidelity and Diversity, Daedulus, 1961, 91, 5-27.

Goulet, L.R. New directions for research on aging and retention. Journal of Gerontology, 1972, 27, 52-60.

Haines, D.B., & McKeachie, J.W. Cooperative versus competitive discussion methods in teaching introductory psychology. Journal of Educational Psychology, 1967, 58, 386-90.

Horn, J.L. Organization of data on life-span development of human abilities. In L.R. Goulet and P.B. Baltes (Eds.), Life-span development psychology. New York: Academic Press, 1970.

Hoyt, D.P. College grades and adult accomplishment: A review of research. Educational Record, 1966, 47, 70-75.

Hurkamp, R.C. Differences in attitudes of dropouts and completers in a New England suburban adult education program. Journal of Education, 1969, 151, 3-30.

Jarvik, L., Eisdorfer, C. and Blum, J. Intellectual Functioning in Adults. New York: Springer, 1973.

Koos, L.V. The community college student. Gainesville: University of Florida Press, 1970.

Landsman, T. The role of the self-concept in learning situations. High School Journal, 1962, 45, 289-295.

Larson, C.G. The adult learner: A review of recent research. American Vocational Journal, 1970, 45, 67-68.

Puder, W.H. & Hand, S.E. Personality factors which may interfere with the learning of adult basic education students. Adult Education Journal, 1968, 18, 31-93.

Rokeach, M. The open and closed mind. New York: Basic Books, 1960.

Rutledge, A. and Goss, Z.G. Nineteen negro men. San Francisco: Jossey-Boss, 1967.

Schaie, K.W. A general model for the study of developmental problems. Psychological Bulletin, 1965, 64, 92-107.

Schaie, K.W. A reinterpretation of age-related changes in cognitive structure and functioning. In L.R. Goulet and P.B. Baltes (Eds.), Life-span developmental psychology. New York: Academic Press, 1970.

Schaie, K.W. and Strother, C.R. A cross-sequential study of age changes in cognitive behavior. Psychological Bulletin, 1968, 70, 671-680.

Seaman, D.F., and Schroeder, W.L. The relationship between extent of educative behavior by adults and their attitude toward continuing education. Adult Education Journal, 1970, 20.

Seeman, M. Alienation and social learning in a reformatory, American Journal of Sociology, 1963, 119, 270-294.

Seeman, M., & Evans, J.W. Alientation learning in a hospital setting, American Sociological Review, 1962, 27, 772-782.

Spelman, M.S., & Ley P. Knowledge of cancer and smoking habits. British Journal of Social and Clinical Psychology, 1966, 5.

Sterns, H.L. Stort-term experiential manipulation in geropsychological research. Paper presented at roundtable on "Problems and prospects in the experimental study of psychological aging." The Gerontological Society Annual Meeting, San Juan, Puerto Rico, December, 1972.

Taylor, R.G. Personality traits and discrepant achievement, Journal of Counseling Psychology, 1964, 11, 76-81.

Zahn, J. Some adult attitudes affecting learning: Powerlessness, conflicting needs and role transition. Adult Education Journal, 1969, 19, 91-97.

LEARNING NEEDS OF DISADVANTAGED COLLEGE STUDENTS

Peter J. Hampton, Ph.D.
The University of Akron

Who is a disadvantaged student? Webster, using the word as an adjective suggests that a disadvantaged student is "one who is deprived of a decent standard of living or education by poverty and lack of opportunity." In other words, he is an underprivileged person. To this end, then, any person regardless of what minority or majority group he comes from can be a disadvantaged person.

Too often in today's definition of the word "disadvantaged" we stress the fact that disadvantage is the result of externally operative conditions. A person becomes disadvantaged because other people make him so? In this sense, the term "disadvantaged" becomes confused with the term "deprived." In using the word "deprived", we recognize that "disadvantaged" is a condition that is not caused by outside sources alone. The person who is disadvantaged, in part, contributes to how own status of being disadvantaged.

When a person is able to assume that his misfortunes are due to external causes, be they human or physical, he can project the blame for his inabilities and his misfortunes away from himself. This way he negates responsibility.

The term "deprived" does not permit this kind of rejection of personal responsibility for the condition of disadvantage in which the person finds himself. Webster defines "deprived" as "to keep from having, using, or enjoying." In this sense, deprived is due only in part to outside environmental or human forces; in part it is due to hereditary predispositions.

The first important recognition, insofar as teaching disadvantaged students is concerned, is to take cognizance of the fact that if disadvantaged students are convinced that disadvantage is something that happens to them without personal responsibility, then the behavioral directions they take will be a projective nature. If, on the other hand, disadvantaged students recognize that deprivation comes from forces which are both external and internal, that is environmental and hereditary, then the student becomes willing to accept some of the responsibility of being disadvantaged.

The conceptual difference between the two uses of the word "disadvantaged" is of great importance in relation to motivation to learn. If being disadvantaged is an attribute of something outside the individual, then he will not try as hard or as sincerely in his learning efforts. If disadvantaged is accepted as a condition for which the individual himself through constitutional or hereditary causes is in part responsible, then he will accept greater responsibility for his own learning and his motivation will become more implicid and less explicid.

A good example of this difference is seen in conjunction with the concept of interests. The person who regards interest in a book, a teacher, or a course as an attribute of the book, the teacher, or the course will not

exert the same kind of motivation as the person who regards interest in a book, a teacher, or a course as a subjective attitude for which he himself if responsible. Interests are subjective experiences, not objective attributes.

We are laboring this point because so much depends on it in relation to recognizing the genuine learning needs of disadvantaged students. Disadvantaged students today are permitted to oversell themselves. It is suggested that the implications of the laws of probability do not apply to the disadvantaged student. What matters is opportunity and desire to do better, not ability or capability. The fact that a student may not have the inherited learning ability or aptitudes required for success to do better is deemphasized. As a result, the disadvantaged student develops a split attitude toward himself. On the outside he is preening with pride over his newly found inflated acceptance. On the inside he is bleeding from self-doubt and anxiety that come with protracted failure.

Motivation and Self-Conceptualization

Two of the most universal characteristics of the disadvantaged college student are his paucity of motivation and his generally low level of self-conceptualization.

The paucity of motivation is the result of long periods of continuous failure or semi-failure. The disadvantaged student frequently shows a built-in attitude of expectation to fail. Thus, his reactions to new tasks are often negative reactions. He says to himself in effect, Why should I try again? I have done so over and over again, and I just can't make it. Why can't I make it? Because I am disadvantaged. Why am I disadvanted? Because others have made me so. I wash my hands of my misfortune. I am not responsible for it, so why should I put more effort, more energy, and more time into doing what I can't do?

This kind of negative motivation is very pervasive. So much so that one of the basic learning needs of the disadvantaged student is to change his attitude from one of expectation of failure to one of expectation of success. He must learn to believe that he can become a successful student by combining personal effort with support from compensatory assistance.

Closely allied to paucity of motivation leading to negative attitudes and eventual cessation of trying is the irrational self-conceptualization practiced by the disadvantaged student. Deep down the disadvantaged student questions his self-assurance, his self-confidence, his feeling of self-worth; but, interpreting disadvantage as something that happens to him from outside, he develops a false projective armature to defend his really weak image of himself against others.

He becomes an actor. He acts out the role of a person who is more capable, more exciting, and better adjusted than he really is. Over a period of time, this delusion leads to the adoption of inflated values. I have seen a disadvantaged student sit at my desk and boldly proclaim that he can go on to a Ph.D. with an I.Q. of 98. I have heard disadvantaged

students summarily discard the accumulated wisdom of ages in favor of their own promptings and their own feelings.

It is tragic that by being too indulgent, by doing too much for the disadvantaged student, we have actually invited him to be satisfied with a parasitic involvement in our culture. It is not a question of what I can do to extricate myself from my condition of disadvantage; it is a question of what I can get you to do for me. I am disadvantaged and you're to blame. What more is there to be said? Much, much more.

We know that learning is a matter of personal self-involvement. The student who believes that he has been short changed by an indulgent society and that all he has to do now is to speak up loud and aggressively to get his share of the goodies, is wrong. Accomplishment without effort is of little value.

Our primary concern, then, as teachers is to recognize these basic characteristics of disadvantaged students and learn to deal with them. Faulty attitudes must not be permitted to destroy the opportunities of disadvantaged students for genuine corrective development of those attributes needed to develop the communication skills and the subject-matter content knowledge needed by the disadvantaged student if he is to profit from higher education or vocational education.

Before we do anything else, then, we must convey to the disadvantaged student:

(1) That the concept of disadvantage is not an etiological occurence that can be pinned totally on other people or on conditions prevailing outside the person who classifies himself as disadvantaged. The disadvantaged student must accept the fact that disadvantage is a condition that derives from both heredity and environment. Only by recognizing this can the disadvantaged student truly overcome his status of being disadvantaged.

(2) That motivation is a personal matter. It is more than an extrinsic condition that leads the student to do as he is bid. It is an intrinsic drive as well.

(3) That failure is not a final end experience but frequently only a temporary inconvenience or a temporary blocking in a course of action.

(4) That self-confidence must be based on successful accomplishment in the past, in the present, and in the promising future. The accomplishment upon which self-conceptualization rests must not be a gratuity that comes from others without personal effort or commitment on the part of the disadvantaged student.

Communication Skills

Disadvantaged students need considerable upgrading in the communication skills. They must be provided with the skills required to receive and to communicate meaning. To succeed in learning, then, they must have the

necessary verbal skills - the ability to read, to write, to speak, and to listen - the necessary computational skills - the ability to deal with the number system - and the necessary adjustment skills - the ability to adjust appropriately to self and others.

Reading Skills. The objectives insofar as reading improvement is concerned are to provide students with an opportunity to review and upgrade themselves in use vocabulary, reading comprehension, and speed of reading. To augment vocabulary building students should have access to cassette tape recordings as the ones on "learning Unknown Words" and "Building a Better Vocabulary". Emphasis should be placed on developing verbal fluency, accuracy of word usage, and use of both simple and complex words.

In connection with improvement of reading comprehension, a cassette tape recording on "Learning to Understand" should be provided to students. Discussions should be undertaken with respect to the nature of understanding, the methods of understanding, a comparison of good with poor understanding, and a discussion of purposes of understanding. Time should also be devoted to a discussion of how we understand and how understanding can be improved through such techniques as anticipating what is to come, perceiving the central ideas, discovering common elements, and relating binding thoughts in reading.

In helping students to upgrade themselves with respect to speed of reading, a discussion centering on the context of a cassette tape recording and an essay entitled "Seven Methods of Reading" should be used. Students should be provided with opportunities to use different methods of reading in order to build speed and accuracy. The methods discussed and practiced include survey reading, scanning, skimming, critical reading. Students should be provided with opportunity to use reading pacers so that they can develop an appropriate personal reading pace.

Writing Skills. In writing skills training emphasis should by placed upon helping students express their own ideas in standard English. Students should be motivated to find and create their own thoughts by using a pattern-structured technique. The mechanics of English, including sentence sense, inflections to show usage, capitalization, and punctuation, should be reviewed and directly applied to errors made by the students in their writing. In-class and out-of-class themes should be graded by the instructor and returned for review.

Basic objectives in training for writing should be: (1) stimulating thinking and preparation for writing, (2) motivating students to perceive the interesting elements in their own environment, (3) stimulating an interest in the use of language by relating mechanics to usage inflections that permit a discrimination of meaning, (4) helping students develop a sentence sense. (5) helping students to select interesting details for writing, (6) teaching students how to organize details, (7) teaching students how to develop a paragraph in relation to the topic sentence which is either expressed or implied, (8) teaching students to vary their sentence structure, (9) teaching the use of suitable transition words, (10) teaching students to write concisely by omitting needless words, (11) teaching students how to capitalize and punctuate, (12) encouraging students

to be honest and forthright in their writings and to think objectively.

Computation Skills. In reviewing basic math with disadvantaged students the objectives should be to: (1) help them improve upon their skills with the basic operation of intergers, fractions, and decimals, (2) help them develop a better understanding of algebraic symbols used to form equations and gain the necessary skills to manipulate these equations, (3) help them understand geometric symbols and formulas, (4) help them improve upon a vocabulary adequate to the use of sets while gaining skills in such manipulations, (5) provide them with a real understanding of our number base system, (6) develop an appreciation on the part of the student in the power of mathematical symbols.

All along, the basic facts in computational reasoning should be reviewed with students. This involves a review of working with whole numbers, fractions, percentages, metrics, equations, and the basics of algebra and geometry.

Study Skills. Time should also be spent with disadvantaged students in reviewing the basic study skills. In this connection, there should be a discussion of the sequential involvements in learning of such behavior manifestations as motivation, concentration, comprehension, retention, recall, and communication. Each one of these sequential steps in the learning process should be given careful attention.

Dealing with motivation, discussions should be, in particular, of the importance of basic individual needs as they relate to learning, such as the tissue needs, the social needs, and the personal aspirations. A thorough discussion of Maslow's need hierarchy should be undertaken.

Insofar as concentration is concerned, discussions should involve fitting the body to the task of learning, adequate mental fuel, deciding upon the direction the student wants to take in learning, dramatizing the need to concentrate, developing shields against distractions, and implementing interests of a pragmatic nature that prompt the student to undertake the behavior and the behavior modifications required to succeed in a learning task.

With respect to comprehension, there is need to discuss the different methods of learning - the trial and error method, the association method, the conditioning methods, and the insight methods. Emphasis should also be placed on the basic means involved in the acquisition of meaning, including the methods of inferential reasoning, deductive and inductive reasoning, eductive reasoning, syllogistic reasoning, and reasoning by assumption implementing the German Als Obs philosophy.

In connection with retention, there should be a discussion of the laws of association, both primary and secondary, the Pavlovian laws of conditioning, the Gestalt laws of insight, the Thorndike law of effect, and so on. At the same time, there should also be discussion of the many individual skills that facilitate learning and retention such as application of the whole method, the spacing method, the recitation method, etc. In addition, emphasis should be placed on the importance of activities counteracting the ravages of forgetting. In this connection, there should

be a discussion of the method of disuse, the method of retroactive inhibition, and the method of convenient forgetting or repression.

Adequacy of communication in learning should be touched upon in relation to the emphasis upon development of adequate communication skills, such as the verbal communication skills of reading, speaking, writing, and listening, the computational communication skills, the graphic communication skills, and the demonstrative communication skills. In the discussion of study skills, considerable attention should be devoted to the need to budget time and the need to budget energy.

Listening Skills. In upgrading students in the area of listening, the Effective Listening program developed by the Xerox Corporation can be used. This training program consists of a series of audio-lingual program instructions and provides opportunity for teaching eight of the most critical listening skills. These include opportunities to: (1) analyze what is being said, (2) organize statements into main points and supporting reasons, (3) outline by the use of key words, (4) organize advantages from disadvantages, (5) discriminate between relevancies and irrelevancies, (6) cut through such distractions as background noise, unusual accents and dialects, speaker disorganization, emotion, and superfluous material.

In connection with instruction in listening, students should be provided with an opportunity to develop a variety of listening skills including the skills of anticipating, organizing, reviewing, analyzing, attending, summarizing, concentrating, interpreting, and generalizing. They should also be provided with an opportunity to distinguish between different kinds of speakers, different kinds of listening, and different levels of listening. They are also informed on how to deal with emotional feelings and with thinking slack while listening.

Adjustment Skills. Since learning involves a good deal of person-to-person relationship, it is important that students are well-adjusted persons in their own right. This involves adequate adjustment to self as a person as well as adequate adjustment to other people. In this connection, there should be discussion with students of the nature, the causes, and possible modifications of adjustment behaviors.

In connection with personal adjustment, the importance of emotional stability and emotional security should be discussed. The concepts of emotional control, adequacy of emotional expression, and opportunities for redirecting emotional behavior through such techniques as sublimation, substitution, and compensation need to be dealt with.

In connection with social adjustment, the importance of extroversion, that is social outgoingness, the requisite degrees of sociallility, social aggressiveness, energy dynamics, cooperativeness, friendliness, and empathic participation should be discussed.

There may be a modicum of defensiveness on the part of students when suggestion is made that some review and upgrading of adjustment skills will be valuable to them in relation to enhancing the effectiveness of their learning experiences. After the initial apprehension is allayed, students

enter enthusiastically upon this phase of communication skills training. To augment discussions on adjustment, ample use should be made of such cassette tape recording programs on adjustment as the following:

Arnold Lazarus
Daily Living:
Coping With Tensions and Anxieties

George Bach
Constructive Aggression

Carl Rogers
Mental Health

Subject-Matter Skills. Developmental upgrading in subject-matter skills can be exemplified by the exposure that is provided to disadvantaged students in reviewing and upgrading their generic science background. In this connection, attempts should be made to help students develop the ability to: (1) identify and define scientific problems, (2) suggest or eliminate hypotheses, (3) select procedures for testing hypotheses, (4) evaluate critical statements by others, (5) reason quantitatively and symbolically.

Discussions in science curriculum should be based on material drawn from biology, physics, meteorology, astrology, geology, and chemistry. Greatest emphases should be placed on materials from chemistry and physics. These are the two science areas in which greatest need on the part of students for upgrading is found. To augment the review and upgrading in science, film, film strips, and laboratory experience can be used. Comparable developmental approaches can be adopted in other generic subject-matter areas.

Generic Subject-Matter Training

Provided with the necessary humility that a subjective interpretation of the concept disadvantaged furnishes to the student who is disadvantaged, provided with a turn about in motivation and attitudes, that is turn about from the negative to the positive, provided with a genuine self-conceptualization leading to a feeling of self-worth, self-assurance, self-confidence, feelings based on actual achievement or potential achievement rather than gratuities, and provided with training in communication and adjustment skills, we must now turn to the disadvantaged student's generic and/or vocational subject-matter background training.

What in essence are his English skills, his math skills, his natural science skills, his social studies skills, his skills in the humanities, and his skills in the fine and applied arts? In training for generic and/or vocational subject-matter content, we must start our instruction at the place where the disadvantaged student diagnostically begins to faulter in his subject-matter knowledge regardless of whether this place equates with the grade of schooling he has reached.

Grade placements are only a very small indicator of what accumulated subject-matter accomplishments a given disadvantaged student has achieved. In many instances, then, because of the wide dispersion of subject-matter background information, training in subject matter has to be on an individual basis. A three- or even four-year difference in subject-matter background among disadvantaged beginning college freshmen is not unusual. For this reason, courses taught to disadvantaged college students must be splintered into many small sections so that every student can get individual attention from the teacher.

Teaching of Affect Reactions

To succeed in satisfying the educational needs of disadvantaged students, we must also be willing to permit him affect responsiveness as well as conceptual responsiveness. We must permit him to express his feelings and emotions as well as his thoughts and ideas.

To accept affectual responsiveness from belligerent disadvantaged students is not an easy task. The teacher who deals with disadvantaged students has to have a high level of frustration tolerance. He must be able to take it on the chin repeatedly.

This fact needs considerable emphasis. Our first reaction as teachers is to expect rational responsiveness from the disadvantaged students we deal with. We expect disadvantaged students like other students to obey the rules and regulations, the standards and the procedures that obtain in a given classroom situation. We take this for granted, but with disadvantaged students we can't. A great deal of the disadvantaged student's self-expression is an attempt to gain attention. The advantaged student gains attention from successful performance. The disadvantaged student frequently has to gain attention from failure responsiveness. He is an attention seeker. He cannot get the attention that the advantaged student gets by his successful performance. The disadvantaged student frequently has to get his attention by implementing deviations of behavior.

Teaching a course in human relations, I find that disadvantaged students come to the classroom with their hats on. In deference to the other students and to long established custom, I expect the student to take off his hat when he sits down. But he does not. I ask him in a polite manner to take his hat off. By so doing, he gains my attention, and he now takes his hat off. I, then, delude myself in thinking that I have solved the problem. But the next day, the hat is back on the student's head.

As a psychologist, I quickly realize that what we have here is not really a premeditated deflection of behavior, but rather an almost subconscious need on the part of the disadvantaged student to ask for affectual responsiveness, even though the affectual responsiveness promoted by the student comes in the nature of an arousal of professional displeasure.

We recently conducted a training program for teachers of low-income and minority students. Part of the training program was devoted to eliciting emotion and feeling from participants. In order to make this possible, we included among our roster of courses a course on urban relations. We hoped

that this would provide the disadvantaged students with an opportunity to abreact, to project, to pounce on the bad men of our society. Our prediction came true. The urban relations phase of our teacher training program provided for considerable ventilation of feelings.

The hostility manifested, the belligerence expressed, the criticalness, the impatience, and the outbursts of anger that were manifested during the meetings were amazing. Some of the disadvantaged students, we found, had repressed over a period of time so much in the way of hostility that they became upon encouragement actually fountains of constant expression of aggressive feeling.

One of our students carried this to such an extent that when we finally took a group picture of the class members, he was the only one who would not even comply with the photographer's request that everybody look at the camera and smile. Not only would he not smile, he would not look at the camera and so in the final group picture he is the isolate who till the very bitter end let everybody else know that he was "against".

We believe the disadvantaged student needs to abreact just like every other person needs to have appropriate channels for tension reduction. It is opportune, therefore, whenever possible, in order to satisfy the learning needs of disadvantaged students, to use techniques of teaching that provide opportunity for the expression of emotion.

The gaming method is frequently very appropriate in this connection. Role playing helps, and confrontation methods that have been used so successfully in sensitivity training in recent years are of great value here. We are willing to go so far as to suggest that the teacher of disadvantaged students will benefit by participating in a sensitivity experience.

Not every teacher, of course, is equally capable of harnessing undisciplined expressions of emotion on the part of disadvantaged students. The rigid person, the perfectionist, the compulsive individual - these personalities find it very difficult to permit free flowing emotion on the part of students.

We recently sent two of our developmental teachers to Columbus to participate in a transactional analysis workshop. One of them came back with great enthusiasm, the other came back quite bitter, ostensibly defeated. It is important to select teachers who are to work with disadvantaged students very carefully. Teaching the disadvantaged is not an easy task. The teacher is not always in control. He must be flexible, permeable, willing to adjust and adapt at all times.

Working with disadvantaged students is a challenge. In the past, we have prided ourselves in dealing with deviant students who fall on the right side of the distribution curve. You recall it was fun working with the superior student the near genius. But now we are more concerned with the person who is on the left side of the distribution curve. The challenge here is more demanding - demanding of such behaviors as empathy, for instance, demanding of willingness to inhibit the compulsion to dominate the class.

Teaching the disadvantaged student is a commitment - not an easy commitment but a satisfying commitment. Much is being written today about compensatory education. Every teacher, tutor, and counselor who undertakes teaching, tutoring, or counseling of disadvantaged students should go back to school. He must learn what there is to learn about innovation of feelings in order to help the disadvantaged student help himself to his share in America.

INDIVIDUALIZING INSTRUCTION[1]

Marion Ruebel
The University of Akron

In the first portion of this presentation I would like to make some general comments on education, leading up to the aspect of individualizing instruction, and then get into the specifics of individualizing instruction.

In general, when we talk about the area of education, and I think higher education is to blame for this, we talk about continuous progress, individualizing instruction; we talk about such old fashioned things as ability grouping (however there's still a lot of people who don't know what it means). We give lip service to these things in methods courses in higher education, and when people go out to teach they just know what the word is, they don't know what it means. When they start teaching, or when our students leave the University of Akron, and we're not unique in this, when people leave Colleges of Education and go out to their first job, they revert back and teach just the way they were taught. Not in colleges, but the way they were taught in high school. I think we're making no change whatsoever.

Teachers tell me that they need more "methods of teaching," and when I ask them what should be taught in a methods course, they can't tell me. Because we're so far out in left field we're not even sure what we need, in order to do an effective job of teaching. Now I believe this: if we're going to talk about such things as individualizing instruction, then sooner or later we're going to have to teach teachers how to do it. We have to get down to the nitty gritty things of how to individualize instruction. I think these are the things we have to talk about in higher education.

You have to know a lot about the kids you are teaching. What kinds of diverse backgrounds do these kids come from? What do they know when you get them? And where do you want them when they leave? I don't think we take time to look at things like this.

When we innovate we buy a new textbook and outline this new textbook and regurgitate it out to the youngsters from our point of view, and then ask them to regurgitate it back to us on Friday, and if the two mesh they get a good grade. That my friends, is not innovation, and by the same token is not teaching. It is possible that 50% of the kids in this classroom had no need for the information in this textbook, and so, systematically, we have to look for where students are at. We have to do this in higher education too.

If you're teaching in a two-year institution I think it's extremely important that you take a hard look at where your people are at when you

---

[1]This paper has been edited from audio tape.

start with them and then determine where do you want them to be when you finish with them? We find that the good student gets better and the poor student gets worse. The reason for this is that we standardize education, and if the youngster doesn't fit in the standardized mold he fails. We look at it this way: education is here - if you want it you can have it. That won't work anymore today. I'm not a liberal, but I think I have a feel for what students need. I know that we can't say "you have to fit into a mold to be educated." If we didn't try to standardize education, if we met their needs as they came along, when they graduated from high school there would be no difference in what they know or their ability to learn than there was on day one when they started to school. Until we get this across to teachers, we're just going to be shooting cheese balls to the moon. We really are not making a dent in what we're doing for the individual student.

Now I'm not a real buff on behavioral objectives but I think somewhere along the line we determine what a youngster has to know in order to get out of school. They have to go for 13 years. We've got a lot of people in secondary education, in the college of education, in the university, that shouldn't be here, because they don't have the tools to get ahead do the things they're supposed to do. We can revert this back to the background they've had in public education.

What has happened to the grading tendency in public education? Do you know what the average undergraduate grade was last spring when we graduated people from the University of Akron. 2.8. This was the average. Okay, what have we done as far as society is concerned and as far as evaluation is concerned. We have bowed to the pressures that society has put on us as far as evaluation and as far as grading is concerned. We have bowed to these pressures, and as we bow to them grading goes up. I can remember when a C was a very respectable grade. But today I think this has taken on less meaning, because our average student that graduated last spring had a 2.8. That's a pretty high average. Today in graduate school, I think a B as far as the student is concerned is very average. As far as I'm concerned, if a B takes on any special meaning at all this is outstanding. But I think we've bowed to pressures that have been put on us, as far as society is concerned, to not meet the needs of the kids but just pacify the kids. I think that the place to start is to come up with something that would lead us to individualizing instruction.

Now some basic statements before we can lead up to individualizing instruction, concerning education itself. The technology is changing faster than organizations can change people. The slowest thing we have in society is education. The slowest moving. I think every good idea that education has come up with has come from industry. The world that our students are going to live in is much different than the world we prepared ourselves for 20 years ago. We have to keep in mind that the whole area of technology is changing much faster than organizations can change people. We have to get to the philosophical question of do we train people in education to fit into society or do we train people in education to change society. Needless to say it has to be a combination of both. What kind of an end product do we want to turn out?

What does a youngster have to know to graduate from high school? If we just teach not to the individual but to the total group we are going to have the same number of kids failing that have always failed. We have to integrate we have to get the goals of the organization together with the needs of the individual. If the goals and what you're doing don't mesh together, you're going in the wrong direction.

Did you ever have a teacher, specifically in higher education, whose notes were all lop eared, the paper started turning yellow with age. You can't tell me that the kids didn't change. The kids changed every year, probably from quarter to quarter. But the professor hasn't changed. In other words, he was never interested in meshing the things together. Do any of us ever do that? Use the same notes over and over. You can't tell me the kids never changed. Flexibility would answer the problem as far as integration within the schools is concerned. You have to find out what are the individual needs and then change the goals of the organization to mesh with these individual needs.

Individualizing Instruction. First we have to start with some misconceptions that we have in education regarding individualizing instruction. First individualizing instruction does not mean that you have 25-30 different activities going on in the room at the same time. You've taught school long enough to know that you can't walk into a classroom, whether it be a university or on a secondary level, and have 25 or 30 youngsters doing a different activity at the same time. That is not individualizing. Secondly, individualizing instruction does not mean complete computer assisted instruction. I think the computer has a tremendous future in education, and I think it has a future in individualizing instruction, but the school system that says it can not individualize instruction because they don't have access to a computer is copping out. In other words this is a scapegoat. You don't have to have a computer in order to individualize. Thirdly, individualizing instruction does not mean that the teacher turns over all responsibility of learning to the students. Fourth and most important of what individualizing instruction does not mean, it does not mean that there is one and only one special program that's going to meet the needs of the students. In other words you cannot implement one program and say that you're individualizing. This is what we're doing today in most cases. We're giving the students one textbook and we expect them to get certain things from that textbook and when the things they think are important mesh with the things I think are important then they're successful. That's not the way to do it. If you have a range of abilities within your classroom, 5 different levels, you've got to have 5 different programs, if you're going to individualize instruction, because we can't take students and make them fit one particular mold.

There is not one particular program that means individualizing. Individualizing instruction is represented by the following. Number one: individualizing is custom tailoring instruction to fit each particular learner. Second, it's based on the premise that there are several best ways for each learner to learn, and not one best way for all learners to learn. Third, if we truly individualize we should make three major adjustments in

teaching. Number one, we have to make some adjustments in the educational texts. Number two, we have to adjust learner behavior. Number three, we have to adjust teacher behavior. In other words we have to adjust the way we're doing it now if we're going to individualize.

Learner behavior is the action performed in the learning task. To adjust learner behavior I think you have to offer many and varied activities to the same kids. Some pupils will learn better in a certain way, and others will learn better in another way. I think you have to find which way the individual student learns best. You have to provide as classroom teachers an outlet for a very broad range of activities and interests. I don't think that we have to cater completely to the kids but I know that if a student is studying something he is interested in he is going to be motivated much more, than if he is studying something he's not interested in. Next, what is teacher behavior? It is the teacher's actions performed in the teacher task to facilitate the learner. To adjust teacher behavior, you have to gear teaching to the individual. You have to custom tailor it to the students that you have. Students are different when you get them and they are going to be different when they leave, so you have to treat them differently when you have them.

TEACHING AND BEHAVIORAL OBJECTIVES
An Instructional System

Isobel L. Pfeiffer
The University of Akron

Behavioral objectives are relevant today. Textbooks, speakers, and articles in educational journals are using the term "behavioral objectives." The term, not the concept, is relatively new. Twenty-five years ago, Ralph Tyler was emphasizing the importance of this kind of teaching goal. However, a number of factors in the educational scene have contributed to a focus on behavioral objectives and made teachers familiar with them in the last six or seven years.

The crisis in American public education, reflected in lack of financial support and general dissatisfaction of students, has produced accountability as a criterion for educators. Who will acept the responsibility for such vagueness as "appreciate", "know", and "understand?" Terms relating to observable student behavior, such as define, construct, summarize, are required. Accountability and behavioral objectives go together.

Silberman attributes the educational crisis to "mindlessness" which characterizes society as a whole. The solution in the schools requires establishing purpose and continuously considering what is done, how it is done and why it is done.[1] This point of view might be restated - "If you don't know where you're going, you're liable to end up somewhere else."[2] On a daily basis as well as by unit, course, and total program, there must be decisions concerning where the learner is going, selection from the alternate routes, and an assessment of progress on the way.

Programmed learning has been another source of support for behavioral objectives. For the sequential mastery in a program, specific objectives must be carefully derived for each task or phase of the task. The planning necessitates establishing essential requisites for the task and proceeding in small steps. Behavior modification also requires specific behavioral objectives. Regardless what kind of a reinforcement program is used, the teacher must decide what particular behavior of a student will be eliminated and what behaviors will be encouraged. Teachers planning either programmed materials or behavior modification necessarily are utilizing behavioral objectives.

Behavioral objectives are goals written to include the following:

1. The student is the subject.
2. The verb is an observable action or produces an observable product.
3. The conditions for performance of the task are specified.
4. The criterion for acceptable behavior is given.

---

[1]Silberman, Charles E., Crisis in the Classroom. New York: Random House, 1970, p. 11.

[2]Mager, Robert F., Developing Attitude Toward Learning. Palo Alto, California: Feron Pbulishers, 1968, p. 13.

These objectives state what the student will be able to do as a result of certain learning experiences. Some examples are:

> When given five sets of three fractions with single digit denominators, the student will be able to arrange them from smallest to largest with 4 of the 5 problems correct.
>
> When given a volleyball, the student will be able to demonstrate a correct procedure for serving.
>
> After a study of the effect of drugs, twenty percent of the students responding to an unsigned questionnaire will show more hesitancy about personal drug use than was shown on the same questionnaire given earlier in the school year.

Behavioral objectives focus on student behavior but they must meet the same criteria as any educational goals. Objectives must be worthwhile. So often, trivia are observable and mistakenly considered good objectives. The learning must have importance for the individual from the perspective of the content area. Educational goals should also represent the three domains of learning: cognitive, affective and psychomotor. Cognitive goals refer to intellectual activities and have been a major concern of our educational system. Psychomotor skills involve physical activity and coordination, e.g., typing, using tools, sewing on a button. Affective goals are those concerned with attitudes, interests, and values and involve an emotional impact on the learner. Teachers sometimes disregard how a student feels about their subject. But even when achievement has been outstanding, the teacher cannot consider himself successful unless the learner has maintained or increased his interest in the subject. The college professor may have been pleased by the achievement of a specific girl in his biology class because she did well on tests after memorizing details from the text. However, the student left the final exam, took her textbook to the bookstore and sold it with the comment, "That's the last biology book I'll read!" In spite of the student's "A" for the course, the professor was not successful in the affective domain for this student.

Educational goals then should be worthwhile and varied. The variety encompasses three domains and provides different levels of activities within the domain. Since the cognitive goals are the major concern in most courses, the teacher should be aware of some classification of these intellectual activities and should provide opportunities for students to experience these. One frequently used system is Bloom's Taxonomy[3] which has six categories: knowledge, comprehension, application, analysis, synthesis, and evaluation. Teacher questions tend to stress the first category, memory. These questions are easy to formulate, and answers are definitely right or wrong. However if teachers are sincere in their intentions to teach students to think, then activities and assessment must include experiences beyond recall. Comprehension involves translation, interpretation and extrapolation.

---

[3]Bloom, Benjamin S. (ed.) Taxonomy of Educational Objectives. New York: David McKay Co., Inc., 1956.

Translation is involved in foreign language study and also in going from a written problem to an algebraic statement. A graph can be verbally interpreted and a prediction from the data is an instance of exprapolation. Using a generalization or principle in a new situation is application, e.g., punctuating a paragraph correctly after studying rules for use of punctuation marks. Analysis is the breaking down of a unit into its component parts; for example, a political speech could be studied in relation to the appeal techniques used by the speaker. Synthesis is the combining of elements in a unique product; a collage, a summary, an oral report all are examples. Evaluation involves judging on the basis of criteria. A behavioral objective, for instance, could be evaluated on the basis of whether the four basic requirements were included. The teacher may find constructing test items above the memory level is a difficult job. Yet higher mental processes are basic when students cope with a changing society. Only when these cognitive skills are developed is education in a democracy fulfilling its major responsibility, providing skills for making intelligent choices.

Behavioral objectives then, must be worthwhile goals and must include cognitive, affective, and psychomotor learning on different levels of complexity. Such a selection of objectives provides a basis for improved planning with better educational results.

The planning of a teacher begins with these objectives. The goals, in terms of what the student will be able to do as a consequence of his learning, provide the bases for the selection of appropriate activities. Since there is a great number of possible experiences which could be used to reach the objectives, a professional selection is required. The students, their background and capabilities must be considered. Learning is facilitated when the learner:

1. responds actively in the situation.
2. sees some possibility of succeeding.
3. experiences success.
4. is encouraged to discover relationships and generalizations.
5. perceives the purpose of the learning activity.

These concepts must be considered in the plans. Limitations of equipment, materials and location are also important. The teacher, with his repertoire of teaching strategies, his interests and his values will be a determining factor in establishing the objectives and then choosing particular learning experiences to achieve the objectives and finally evaluating on the basis of their objectives. The evaluation, as well as the activities, are related to the goals. In other words, where the learner is going determines the alternate routes and the check points along the way. When the teacher discerns that progress toward the goal is not satisfactory, then the activities are reorganized or recycled. In fact, the teaching is continuously adapted to the evaluation data.

The system then has three major components: objectives, activities and evaluation. (See Figure I) The teacher has a critical responsibility in considering these and other input factors and making the appropriate selection and adaptation in the continuing cycle. For after the objectives have been attained, then new objectives for new tasks are formulated.

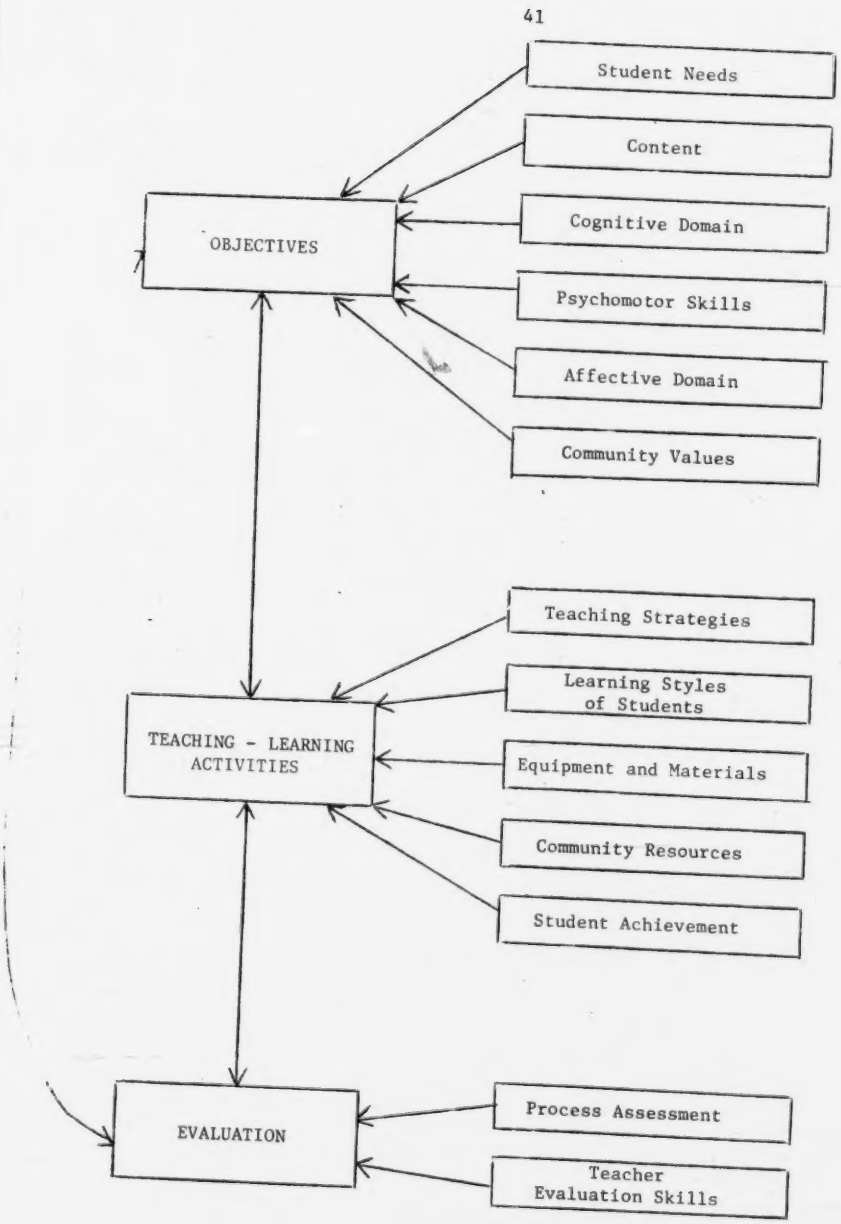

Student Needs
Content
OBJECTIVES
Cognitive Domain
Psychomotor Skills
Affective Domain
Community Values
Teaching Strategies
Learning Styles of Students
TEACHING - LEARNING ACTIVITIES
Equipment and Materials
Community Resources
Student Achievement
EVALUATION
Process Assessment
Teacher Evaluation Skills

Fig. I

This system is valid for a course, a unit or a daily plan. The difference is in the specificity of objectives. Together these are an interrelated whole, but the daily plans are derived from the unit and the ultimate course goals. In other words, the daily objectives are specific and detailed. These taken in relation to a unit provide broader unit goals which, in turn indicate the scope of the course. (See Figure II)

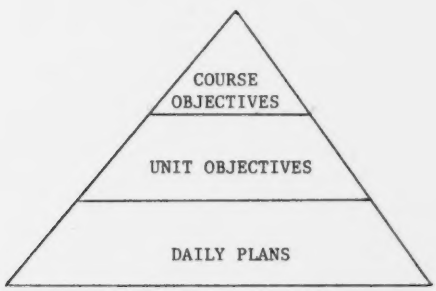


Fig. 1

"Peanuts" recently provided an illustration of these levels. Charlie Brown struck out in his baseball game. He was depressed and confided to Lucy that his goal was playing major league ball. Lucy, in her inimitable fashion, suggested he should work on a more immediate task - getting to the pitcher's mound without tripping. So, with daily objectives, teachers strive toward those more comprehensive and ultimate course goals.

Good teaching then is based on the formulation of appropriate behavioral goals which focus on student learning, selection of activities to accomplish the objectives, and evaluating the process to promote continuous progress toward the objectives. The teacher has the critical role in adapting this system to his unique situation and to his students.

DEVELOPMENT OF CURRICULUM AND PREPARATION FOR INSTRUCTION IN VOCATIONAL AND TECHNICAL EDUCATION

Albert J. Pautler, Jr.
State University of New York at Buffalo

Goodlad (1969) stated, "If the most frequently discussed and recommended educational practices of the Education Decade were already implemented, the following would seem reasonable.

FIRST, teaching would be characterized by efforts to determine where the student is at the outset of instruction, to diagnose his attainments and problems and to base subsequent instruction on the results of the diagnosis.

SECOND, learning would be directed toward "learning how to learn," toward self-sustaining inquiry rather than the memorization and regurgitation of facts.

THIRD, this inquiry would carry the student out of confining classrooms and into direct observation of physical and human phenomena.

FOURTH, classrooms would be characterized by a wide variety of learning materials - records, tapes, models, programmed materials, film strips, pamphlets, and television - and would not be dominated by textbooks.

FIFTH, attention to, and concern for, the individual and individual differences would show through clearly in assignments, class discussions, use of materials, group practices, and evaluation.

SIXTH, teachers would understand and use such learning principles as reinforcement, motivation and transfer of training.

SEVENTH, visitors would see vigorous, often heated, small and large group discussions, with the teacher in the background, rather than forefront.

EIGHTH, one would find rather flexible school environments - marked by little attention to grade levels - and extensive use of team teaching activities involving groups of teachers, older pupils, parents and other persons in the teaching-learning process. And, certainly, it would be reasonable to expect to find innovative ways of dealing with special educational problems such as those presented by environmentally handicapped children." (p. 60)

The stated eight points have been used to more or less, set the stage for meaningul curriculum development in vocational-technical education.

A major purpose of education is to prepare people to adjust to and improve the present and future society. Vocational education must be considered a part of the total education of an individual because success in a particular vocational area is dependent upon general education as well as vocational education. This implies that vocational education must concern itself with the teaching of basic general knowledge and skills as well as vocational knowledge and skills.

Curriculum development in vocational-technical education is complicated by the diversity of occupational objectives; differences in educational levels, types of programs, and groups served; geographical variations in occupations: and by a wide range of occupations. Although there are basic principles of curriculum development, competent subject matter specialists are essential when these principles are applied to specific occupations.

Vocational-technical education, while not unique as a discipline is unique as a program, and this uniqueness is reflected in student goals, curriculum, instructor qualifications and facilities and equipment needed for the instructional program.

CURRICULUM

It would seem appropriate to define the meaning of curriculum. Each and every author of a text or book dealing with curriculum seems to arrive at a different definition of the meaning of curriculum. A review of some of the most common definitions seems appropriate and they follow:

Saylor and Alexander (1967) offer the following definition:

> "Curriculum encompasses all learning opportunities provided by the school. Thus, we think of "the curriculum" and "the program" of the school as synonymous. In another sense, the curriculum of an individual pupil includes the learning opportunities he actually selects and experiences; this is the "curriculum had." Although all curriculum planners aim to provide a "curriculum planned" which would be of optimum value to learners, they generally provide a much greater range of opportunities than any one individual pupil would select and experience. It is this total planned program and the fit of its individual parts to each other and to individual pupils with which we are primarily concerned."

Doll (1967) defines curriculum as:

> "The commonly accepted definition of the curriculum has changed from content of courses of study and list of subjects and courses to all the experiences which are offered to learners under the auspices or direction of the school. These experiences may occur in school buses, cafeterias, the corridors as well as in classrooms and auditoriums."

Anderson (1965) defines curriculum as:

> "The curriculum is defined in terms of the quality of pupil experiences in the school environment. The curriculum includes not only classroom experiences, but also the extra-class activities: the planned school services such as the library and health services, the field trips into the community, the school assemblies and the entire school community as used for learning experiences. All of these are deliberately planned by the school to serve social purposes."

Inlow (1966) states the following in regard to the curriculum:

> ". . .curriculum will carry the connotation of the planned composite effort of any school to guide pupil learning toward predetermined learning outcomes."

Many more definitions of curriculum could be listed. For operational purposes, this paper will use the Inlow (1966) definition which is, "Curriculum will carry the connotation of the planned composite effort of any school to guide pupil learning toward predetermined learning outcomes." It is, therefore, essential that the faculty of any school have established objectives stating the predetermined learning outcomes for their students.

EDUCATIONAL OBJECTIVES

The importance of educational objectives for the school, the program and the individual courses should be of high priority to the faculty, administration, students and parents. In vocational education, the objectives should also be of interest to the local industrial community. In fact, members of the local industrial community should be asked to serve on the various advisory committees charged with arriving at suitable educational objectives for the various programs and courses. A school, program and course can only be evaluated in terms of what were its stated objectives. Any other method of evaluation is criminal.

It is not the intent of this paper to list objectives for various schools, programs or courses as that is the responsibility of the schools and those associated with them.

As I do view it, the vocational education program should be guided in writing educational objectives by both educational considerations and the pressures, needs and skills required by a modern industrial society. Figure 1 which follows should help to explain the previous statement.

EDUCATIONAL CONSIDERATIONS

The objectives of technical programs should be considered and stated based upon the general education objectives and the demands and needs of

FACTORS INFLUENCING OCCUPATIONAL EDUCATION

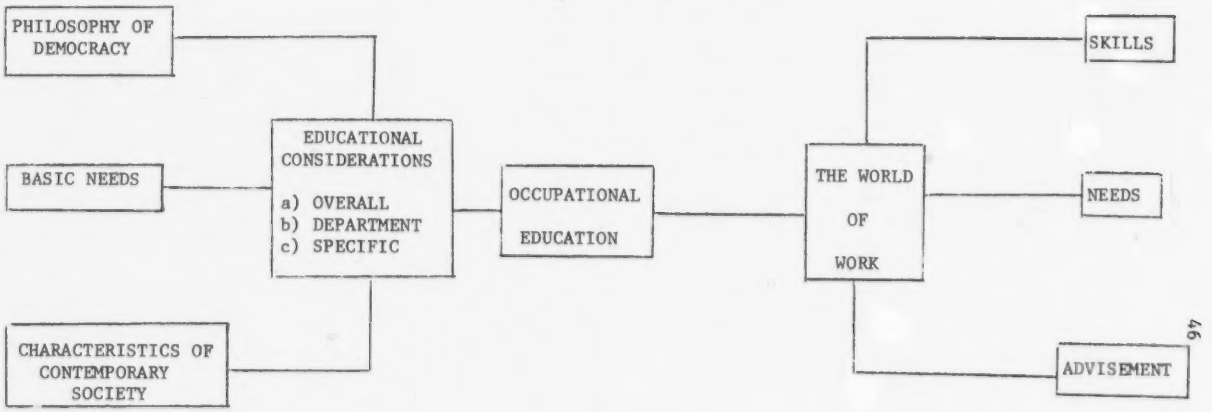


FIGURE 1: Factors Influencing Occupational Education

the world of work. The educational considerations are listed in three categories: (a) overall, (b) department, and (c) specific. Before a discussion of these three categories can begin, it will first be necessary to discuss the three influencing factors as shown in Figure 1. These factors are: (a) A Philosophy of Democracy, (b) Basic Needs, and (c) Characteristics of Contemporary Society.

A Philosophy of Democracy

Each and every individual has an equal right to as much education as he is capable of handling. All should be entitled to this education withoug regard to race, color or creed.

Although most will agree that all should have equal rights to quality and diversified educational programs, this in practice is just not possible for many reasons. The problem of large city school systems to attract highly qualified and skilled teachers is but one example. Another would be the inability of a small school district to provide the wide range of academic and occupational programs for its student body. Many other items of concern could be mentioned which influence the right to equal education of all students.

Since our major concern is technical-vocational education, let's focus for a moment on the problems of providing quality and equal occupational education programs. The local school officials must be convinced of the need to offer occupational programs of equal quality to its academic program. The range of courses available should be sufficient to meet the needs of those students who can best profit from occupational preparation courses. The school district, no matter what its size, must be advised of its role to provide occupational education programs as best it can. It is obvious that some districts will provide quality programs while others will not make any efforts.

It should be obvious that although we say in a democracy that all students should receive an equal education, this is not the case. At the local level, the community influences the school program and should demand a quality program which meets the needs of all the students. Equal attention should be given the occupational preparation program as that received by the college preparatory program.

Basic Needs

Human beings attempt to satisfy the three essential needs of providing food, clothing and shelter for themselves and their family. The ability for providing these basic needs is contingent upon the ability of the person to earn money to obtain the necessary foods, clothing and shelter. These needs must be satisfied before we can worry about education.

Society and the educational system has the responsibility of providing each individual with the opportunity necessary to gain suitable employment in the work world. It does not matter on what level the indi-

vidual receives this training, but it should be available to him. It should be available for in-school youth, and out-of-school youth and adults. It appears to this writer that before we can solve many of our current problems, we must be able to educate or train all people to earn a living.

Vocational education will help the individual gain security, status and a belonging in his society. If each individual is given the opportunity for occupational and academic education, his ability to participate more fully in society should be met.

The point is that vocational education is one of the most essential items in helping an individual fulfill his basic needs. In the development of an occupational preparation program, the concern of the individual student should be a major consideration. Allow each student the opportunity to fulfill his basic needs by providing as much general and vocational education as he can handle.

Characteristics of Contemporary Society

Occupational program planners must give considerable attention to the present and future trends in society. National as well as local considerations must be considered in program planning. Some of the major items of consideration follow:

Urbanization
Mobility of the population
Racial integration
Automation
Rapid Change
Specialization
Mechanization

The above list of considerations which occupational program planners should consider in program development is by no means complete. The items should be considered and investigated in detail to determine the application at the local planning level. Obviously, the main concern is with the types of programs (specializations) which should be offered to best prepare the students for the world of work. The many influencing factors of contemporary society must be considered by those planning new occupational preparation programs.

Figure 1 indicated that the educational objectives of concern to occupational education are influenced by the following: Philosophy of Democracy, Basic Needs, Characteristics of Contemporary Society. The more explicit considerations will now be discussed in greater detail.

The more explicit educational objectives of immediate importance to occupational program planners may be divided into three major areas. The areas are: (a) Overall, (b) Department, and (c) Specific.

Overall Objectives

Occupational program planners should be concerned with general educational objectives as they apply to total educational programs as well as

the importance to department level and specific considerations. It is suggested that such program planners be aware of the following: Developmental Tasks of Adolescence; Ten Imperative Needs of Youth of Secondary School Age; The Seven Cardinal Principles of Education. The occupational program planner should be aware of the listed needs and tasks and consider them for efficient program planning.

Havighurst (1953) suggests the Developmental Tasks of Adolescence in his book Human Development and Education.

DEVELOPMENTAL TASKS OF ADOLESCENCE

Accepting one's physique and accepting a masculine or feminine role.

Achieving new relations with age-mates of both sexes.

Achieving emotional independence of parents and other adults.

Achieving assurance of economic independence.

Selecting and preparing for an occupation.

Developing intellectual skills and concepts necessary for civic competence.

Desiring and achieving socially responsible behavior.

Preparing for marriage and family life.

Building conscious values (esthetic, religious, ethical) in harmony with an adequate scientific work picture. (p. 338)

The Educational Policies Commission (1944) lists the Ten Imperative Needs of Youth.

THE TEN IMPERATIVE NEEDS OF YOUTH

1. All youth need to develop salable skills and those understandings and attitudes that make the worker an intelligent and productive participant in economic life. To this end, most youth need supervised work experience as well as an education in the skills and knowledges of their occupations.

2. All youth need to develop and maintain good health and physical fitness.

3. All youth need to understand the significance of the family for the individual and society and the conditions conducive to successful family living.

4. All youth need to understand the rights and duties of the citizen of a democratic society and to be diligent and competent in the performance of their obligations as members of the community and citizens of the state and nation.

5. All youth need to know how to purchase and use goods and services intelligently, understanding both the values received by the consumer and the economic consequences of their acts.

6. All youth need to understand the methods of science, the influence of science on human life, and the main scientific facts concerning the nature of the world and of man.

7. All youth need opportunities to develop their capabilities to appreciate beauty in literature, art and nature.

8. All youth need to be able to use their leisure time well and to budget is wisely, balancing activities that yield satisfactions to the individual with those that are socially useful.

9. All youth need to develop respect for other persons, to grow in their insight into ethical values and principles, and to be able to live and work cooperatively with others.

10. All youth need to grow in ability to think rationally, to express their thoughts clearly, and to read and listen with understanding. (pp. 225-226)

The Commission on the Reorganization of Secondary Education (1918) suggested what it called The Seven Cardinal Principles of Education.

THE SEVEN CARDINAL PRINCIPLES OF EDUCATION

1. Health

2. Command of Fundamental Processes

3. Worthy Home Membership
4. Vocation
5. Citizenship
6. Worthy Use of Leisure
7. Ethical Character

Department Objectives

The department level objectives should be stated educational objectives appropriate to all vocational preparation programs. They should be based on firm educational theory and practical in nature. The writing of objectives is best if all staff members, within the department, are involved in setting down the occupational preparation objectives.

At this point, it must be indicated that some consideration be given to evaluate the success or failure of the department in achieving its stated objectives. A program should be evaluated only in terms of what were its stated objectives.

Based upon the overall educational objectives discussed earlier, the following department level objectives are suggested to the occupational program planner.

Preparing the Learner for Occupation

This has been and is the main objective of vocational education. It is suggested that the written statement of the local level should place limitations on this objective. In other words, is the learner prepared for a specific occupation, or a range or cluster of occupations? What would be considered related occupations and how are they to be determined? Remember that evaluation is based on the stated objectives. Most vocational educators are familiar with follow-up studies of past vocational graduates. The follow-up study after graduation is used to obtain a percentage of the number of graduates who enter their field of specialization, or a closely related field. Little mention is made to indicate how related occupations are determined for follow-up purposes. The point is that if an electrical technology graduate is employed as a parts counterman, is he working in his specialization?

Assurance of Economic Independence

This item is directly related to preparing for an occupation. The concern, however, is to make sure that the learner is adequately prepared to take his place in the work force and gain economic independence.

Occupational program planners must constantly follow-up past graduates and determine if they have suitable earning power. The program planners and teachers must be aware of industrial change and technology and keep

up-to-date. Is there a need and a demand for the students who complete an occupational program or are they outdated and insufficiently prepared at graduation? This is a difficult item to evaluate but should be of major concern to all educators.

Satisfaction of Human Needs

Since a great majority of the life space of every individual is spent in some form of an occupation, satisfaction is necessary. Every attempt should be made in occupational programs to help the learner find satisfaction in his work. Encourage the learner to do the best he possible is able to do and develop as much skill as possible. Personal satisfaction is important and the attitude of the teacher is perhaps the best way of helping the student gain it. It is very difficult to evaluate in any objective way.

To this writer, these three stated items are most important in occupational preparation. They should be written in simple terms and by the members of the department to be the most meaningful to all.

Specific Objectives

At this point, the overall and department objectives which have been discussed would be applied to the actual specialization. The specific objectives of a particular course in mechanical technology would be spelled out in detail with consideration given to the overall and department level objectives. The specific objectives would be those which would be found in the course of study dealing with the specialization of concern. These objectives would, and should, be based on the general objectives of education as well as the specific objectives of occupational education.

The influences of the present and future world of work would be of major concern. Stated objectives in terms of goals to be achieved are essential, since final evaluation is based upon the success of the learner to achieve the stated specific objectives. It would be at this point that the teacher or a group of teachers would spell out specific behavioral objectives for the mechanical technology course or any course.

At this point, the objectives of the school, program and courses would be written and agreed upon by those involved in the decision-making process. Remember, final evaluation should be based upon the stated objectives.

THE FIELD STUDY

The occupational offerings (electronics, machine design, etc.) should be decided upon as a result of a field study. The field study is a survey of the local, state or national situation to determine what specializations should be offered in a certain school or county. The development of a field study is a topic within itself and will not be

elaborated upon in this paper. Advisory committees made up of members of the local industrial community should play an active role in the planning, operation and evaluation of the field study.

At this point, the field study has been conducted and educational objectives written and agreed upon for the school program and courses.

Figure 2 is a curriculum design which indicates some of the influences on the all school program. In addition, the influence of the educational objectives on the all school program are effected by philosophy, sociology and psychology. All of these influences should be considered in the development of the teaching-learning situation. Figure 3 is especially related to occupational preparation programs. Enough has already been said about educational considerations and the pressure of the world of work. Our concern will now shift to the development of the teaching-learning situation.

THE PROGRAM

After the design and structure of the program are decided upon, the real curriculum development effort begins. Program refers to the program in automotive mechanics or electronics, as two examples. A program may be one, two or more years in length and made up of smaller packages known as courses. These courses may be designed for a 10 week, 20 week or 40 week period of instructional time or more or less as the situation warrants. The decision as to the organizational structure and the variety of programs (specializations) to be offered is a local one. After the organizational structure and programs are decided upon, the real curriculum development effort begins.

THE COURSE OF STUDY

According to Schaefer (1969), "Much is being said these days about 'behavioral' goal setting. But the hard facts are clear and precise objectives of the day-by-day teaching have all too often been lacking." Assuming that clear, well written objectives stated in behavioral terms have been decided upon by the school staff, it now becomes time to develop the various courses of study essential to implement the stated school and program objectives.

Mager and Beach (1967) in their book, Developing Vocational Instruction, outline the steps of the preparation phase which are designed to insure that all the information and practice necessary to perform the job are included in the course. (See Figure 4) Their book should be of value to anyone interested in occupational instruction based on behavioral objectives.

Two other approaches to course construction are worthy of consideration. Tuckman (1968) described a technique called structural analysis which represents an attempt to analyze terminal performance objectives for a unit of subject matter into a sequence of subordinate or pre-

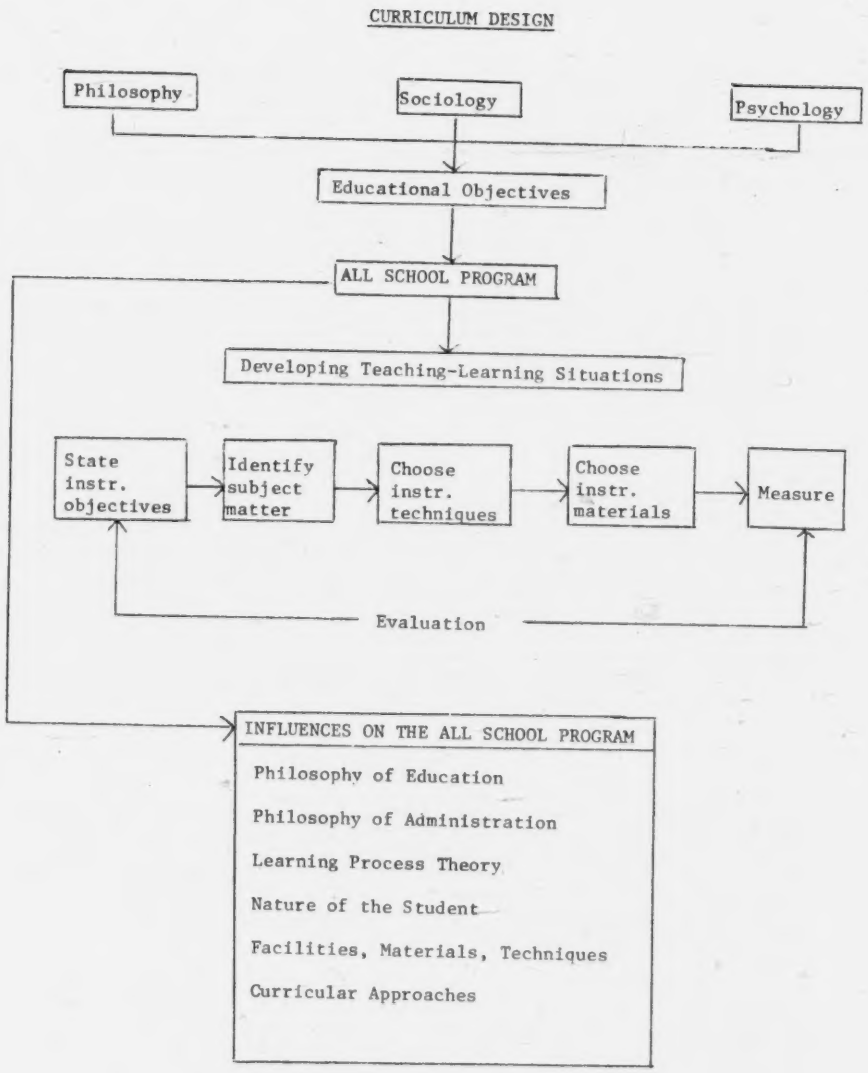


FIGURE 2: Curriculum Design

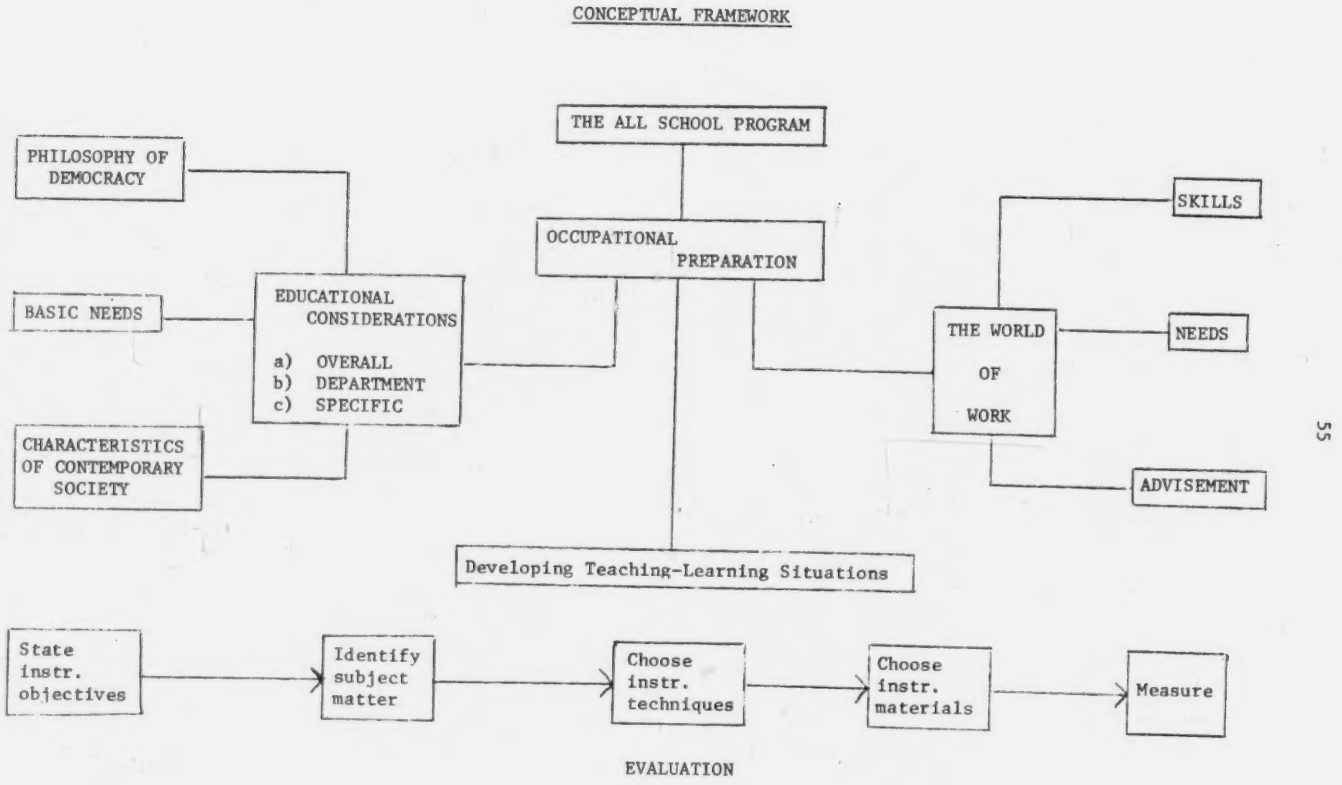


FIGURE 3: Conceptual Framework

requisite competencies which must be satisfactorily mastered if successful terminal performance is to occur. Competencies are arranged in the hierarchy by level, going from complex to simple.

Those responsible for course construction should seek expert advice before attempting to develop a course of study based on behavioral objectives. If the teacher must develop his course of study and is interested in doing it based on behavioral objectives, he should be offered expert advice and assistance. It is not a process one can master from a text book alone.

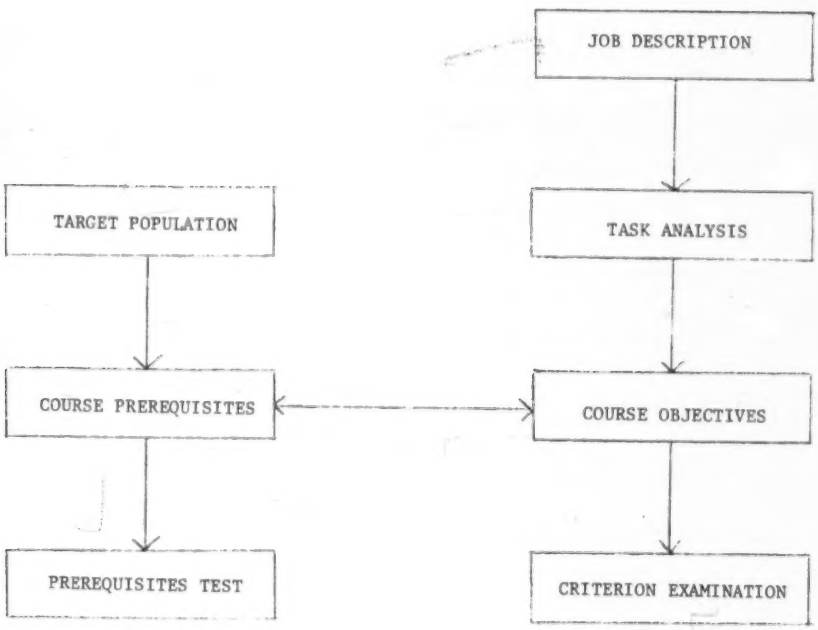
SUMMARY

An attempt has been made to suggest a practical yet very realistic theory of vocational-technical curriculum development. Curriculum was defined and high priority assigned to the writing of educational objectives. If program evaluation is to occur, then the program should be evaluated in terms of its stated objectives. Thus, the need for well stated educational objectives.

Course construction should be based on behavioral objectives which are well written and clearly understood by the student.

If you and I are to stand accountable to the students, parents and employers, every effort should be made to provide the best program as is possible for the students.

THE STEPS IN COURSE PREPARATION



Taken from "Developing Vocational Instruction"
by Robert Mager and Kenneth Beach, Fearon
Publishers, Palo Alto, California.

FIGURE 4: Steps in Course Preparation

THE OUTLINE[1]

To be a really usable item the course of study should be contained in some form of loose-leaf binder, so that units can be modified, deleted, or added to as the necessity for change or modification is realized. Also, as lesson plans are constructed by the teacher during the course of the year they can be added to the proper unit in the course of study. It is generally much easier to up-date and modify a course of study assembled in this manner than it would be to change a bound copy.

The following items should be considered essential to every course of study.

1. Title Page
2. Introductory statement
3. Philosophy of the school
4. Objectives of the course-desired outcomes
5. Student requirements-prerequisites
6. Length of the course
7. Relationship of course to all-school program
8. Topical unit outline
9. Instructional units
10. Advisory committee statement

[1]Pautler, Albert J. Teaching Shop and Laboratory Subjects, Columbus: Charles E. Merrill Publishing Co., 1971, p. 71.

BIBLIOGRAPHY

Anderson, Vernon E. Curriculum Improvement. New York: The Ronald Press Company, 1965.

Commission on the Reorganization of Secondary Education. Cardinal Principles of Secondary Education. Washington: Government Printing Office, (U.S. Office of Education, Bulletin No. 35), 1918.

Doll, Ronald C. Curriculum Improvement. Boston: Allyn and Bacon, Incorporated, 1967.

Educational Policies Commission. Education for All American Youth. Washington: National Education Association, 1944.

Goodlad, John I. "The Schools vs. Education." Saturday Review, 59-61, 80-82, April 19, 1969.

Havighurst, Robert J. Human Development and Education. New York: Longmans Green and Company, 1953.

Inlow, Gail M. The Emergent in Curriculum. New York: John Wiley and Sons, Incorporated, 1966.

Mager, Robert F., and Beach, Kenneth M. Developing Vocational Instruction. Palo Alto, California: Fearon Publishers, 1967.

Saylor, J. Galen and Alexander, William M. Curriculum Planning for Modern Schools. New York: Holt, Rinehart and Winston, Incorporated, 1967.

Schaefer, Carl J. "Accountability: A Sobering Thought." American Vocational Journal, 21-23, April 1969.

Tuckman, Bruce W. Structural Analysis as an Aid to Curriculum Development. New Brunswick, New Jersey: Rutgers University, 1968.

EVALUATION BASED UPON A SYSTEMATIC ANALYSIS OF TEACHING: THE TEACHING SKILL OF BRAINSTORMING

Charles R. Doty
Department of Vocational and Technical Education
Rutgers University
The State University of New Jersey

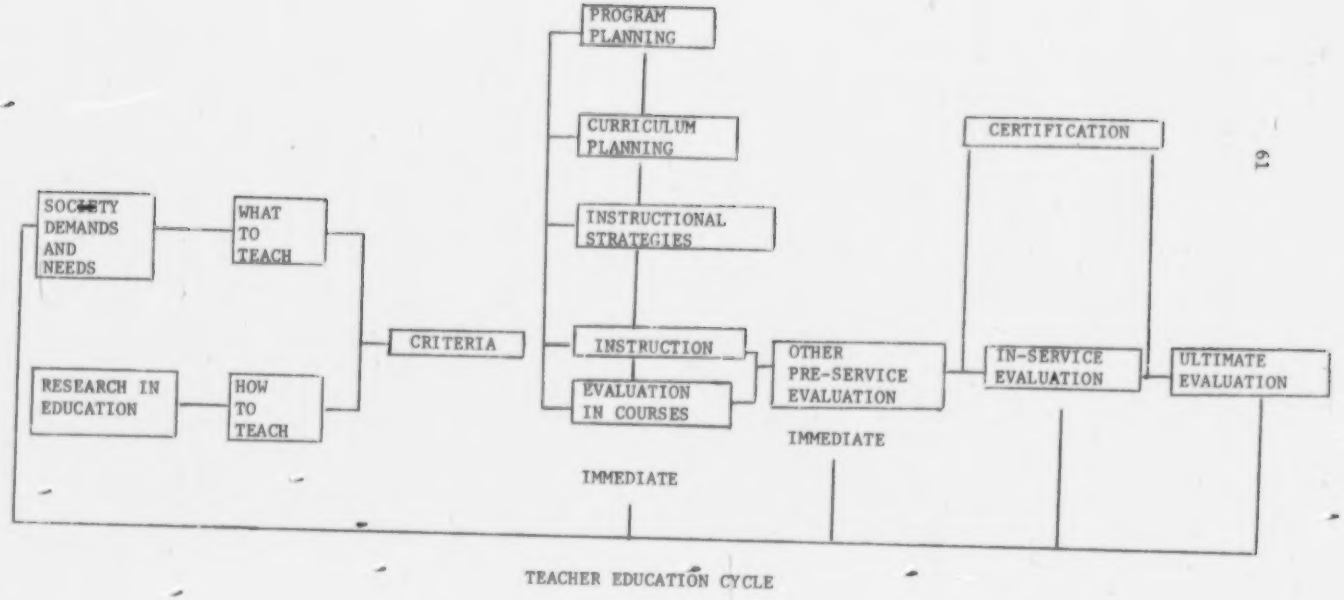
+ ANALYSIS OF TEACHING
+ EVALUATION
+ CERTIFICATION BY PERFORMANCE
QUALIFIED TEACHERS

The recent progress toward evaluation of all facets of education has produced efforts in almost every state. California, New York, Michigan, Louisiana, Florida and New Jersey, to mention a few, have research projects on evaluation. The American Vocational Association has released its pilot test edition, Instruments and Procedures for the Evaluation of Vocational-Technical Education. The Center for Vocational and Technical Education has a project titled "Model Curricula for Vocational and Technical Teacher Education." Prior to this effort, the Center published a report on A System for State Evaluation of Vocational Education. These are all projects whose purpose is to analyze teaching and its related components by establishing a system of evaluation to increase educational efficiency.

Of special importance to the teacher educator is the objective in these and other projects to base certification upon an "individual's demonstrated ability to teach rather than only his performance in college courses (Performance Evaluation Project, 1972)." This objective requires a thorough analysis of teaching and the development of instruments, listing the specific behaviors for each teacher function or performance element, which may be used for certification based upon teacher performance. A performance element is a statement of an observable behavior which describes what a teacher will be doing as he functions in the teacher role.

Each teacher educator can develop his own instruments to use as guides in supervisory sessions, to provide self-instruction for teachers and to serve evaluation purposes. To develop these instruments, the teacher educator should know the teacher education cycle within which evaluation occurs in order to determine when and what evaluation is appropriate. The teacher educator should also know what evaluation means and have guidelines before him for developing instruments.

Cycle. The teacher education cycle (see Fig. 1) illustrates the steps to educate and evaluate teachers. The cycle begins with society expressing needs and demands that it wants teachers to perform. Research in education produces the theory, knowledge and skills necessary to properly teach. Criteria (specific behaviors), immediate and ultimate, for teacher performance are produced from the needs and demands of society and the information from research in education. The criteria are



TEACHER EDUCATION CYCLE

FIGURE 1

translated by program planners into educational objectives for teacher education programs. These objectives are used by curriculum developers to plan course content and define instructional strategies, e.g., lecture or field experience, to educate the teachers. The objectives are also used as the basis for evaluation. Evaluation of the teacher occurs during enrollment in courses, pre-service teaching, in-service teaching and during the teacher's career. Certification presently occurs when a person receives a bachelor degree or if the person enters teaching directly from business or industry and after the person has actually taught full time with or without teacher education.

Evaluation. Two types of evaluation exist, immediate and ultimate. Immediate evaluation of teachers is the observation of their behavior while they are in class or remain enrolled in an educational course or program. Ultimate evaluation of teachers occurs after the teachers are no longer being prepared by a teacher education institution.

Evaluation and instruction are inseparable. Evaluation is a learning experience. It should also be pointed out that evaluation should be done using criteria which the teacher has known prior to his being evaluated. In fact, evaluation in its truest sense means that the person being evaluated knows what he is being rated on and has had the opportunity to practice before being evaluated.

The idea, that the teacher knows the criteria he must fulfill, requires a detailed description of the behaviors (criteria) which he must possess and demonstrate at the time of evaluation. This description should also contain the behaviors to be exhibited by the student, if any, depending upon the performance element. For example, requisitioning supplies does not require a description of student behavior because students are not involved.

Guidelines. An instrument is developed in three stages, assuming that the teacher functions (performance elements) have been identified. These steps are : 1) defining the performance element, 2) analyzing the behaviors (criteria) that the teacher must exhibit to accomplish the performance element and 3) developing an instrument, if needed, listing student outcomes.

Defining the performance element actually means setting the parameters of the element. For example, if the element "writing educational objectives" has been identified, what does this mean? Does this mean the teacher must write educational objectives for a program, a course or a lesson? The guidelines for defining the performance element are probably best stated as questions which the developer must ask himself:

1) What do I really expect the teacher to be able to do?
2) Can this element be broken into other elements that are large enough that individual instruments should be developed for them? (note the example on educational objectives.)
3) Can I define this element in two or three simple sentences, without restrictive clauses?

An example of a definition is illustrated in Figures 2 and 3 for the performance element "brainstorming." Does this definition fulfill the guidelines above?

Guidelines for writing the behaviors (criteria) that the teacher must exhibit to accomplish the performance element are:

1) Each criterion should contain an observable and measureable behavior.
2) Each criterion should contain a behavior that is feasible, based upon up-to-date information.
3) Each criterion should include an important behavior necessary to the achievement of the performance element.
4) The criteria should be listed in a logical sequence when possible.
5) Each criterion should be a complete sentence.
6) Each criterion should be concisely stated.
7) The criteria should be consistent in terminology (e.g. student learner) and in the use of plurals and possessives.
8) The criteria should be written in past tense.

The guidelines are criteria. Do they fulfill the criteria?

Following is an example of criteria for the performance element of brainstorming. Immediate criteria are listed for the teachers and students. Note, on the right hand side, the criteria are labeled cognitive, psychomotor or affective. This labeling aids the developer to check for missing criteria.

Criteria for Teachers
Brainstorming

Based on observation of performance the teacher[1]

1.	explained the purpose of brainstorming	cognitive
2.	explained the rules of brainstorming	cognitive
3.	defined the problem to be brainstormed	cognitive
4.	recorded all ideas immediately	psychomotor
5.	avoided criticizing or evaluating student ideas	affective
6.	encouraged continuous flow of ideas from students	cognitive
7.	consolidated ideas after the session	cognitive
8.	presented the summation of ideas to the students for their evaluation or use	cognitive

Criteria for Students

Based on observation of performance the students

1.	followed the rules of brainstorming	affective
2.	produced ideas on the problem	cognitive

[1]The criteria are prefaced by the underlined phrase to insure a complete sentence for each criterion.

FIGURE 2

Instructor_____Teaching No._____
Tape No._____Counter_____To_____
Rater_____

CRITIQUE FORM
BRAINSTORMING

Brainstorming is a technique to encourage creative thinking in order to produce new and/or varied ideas. These ideas may offer potential solutions for problems being focused upon.

Directions: The following items will be used to analyze the teacher's teaching. If the teacher did not accomplish the item, mark "Did Not Accomplish." If the teacher did accomplish the item, mark "How Well Accomplished."

Did the teacher in the brainstorming session?	HOW WELL ACCOMPLISHED					
	Did Not Accomplish	Very Poor	Poor	Average	Good	Excellent
1. state the purpose of brainstorming?	☐	☐	☐	☐	☐	☐
2. explain the rules of brainstorming (i.e.,A) No suggestion is to be criticized; B) All ideas will be recorded; C) Don't withhold any thought, no matter how wild it may seem at the time; D) No complaining allowed)?	☐	☐	☐	☐	☐	☐
3. state the problem clearly?	☐	☐	☐	☐	☐	☐
4. provide a means of recording ideas rapidly (tape recorder, stenotypist, chalkboard,etc.)?	☐	☐	☐	☐	☐	☐
5. avoid criticism or evaluation of ideas?	☐	☐	☐	☐	☐	☐
6. permit chain thinking (build on ideas of others)?	☐	☐	☐	☐	☐	☐
7. prevent lulls by restating problem or trying a new problem?	☐	☐	☐	☐	☐	☐
<u>After the session</u>:						
1. consolidate the ideas?	☐	☐	☐	☐	☐	☐
2. present the summation of ideas to the students at a later meeting?	☐	☐	☐	☐	☐	☐

FIGURE 3

Instructor_____Teaching No._____
Tape No._____Counter_____To_____
Rater_____

CRITIQUE FORM
BRAINSTORMING

Brainstorming is a technique to encourage creative thinking in order to produce new and/or varied ideas. These ideas may offer potential solutions for problems being focused upon.

Directions: The following items will be used to analyze the teacher's thinking. If the students did not exhibit the item mark "DID NOT ACCOMPLISH." If the students accomplished the item, mark the proportion of the class who did: 20%, 40%, 60%, 80%, or 100%.

Did the student in the brainstorming session:	Did Not Accomplish	PERCENTAGE WHO ACCOMPLISHED ITEM				
		20	40	60	80	100
1. avoid criticizing ideas of fellow students?	☐	☐	☐	☐	☐	☐
2. volunteer ideas without hesitation?	☐	☐	☐	☐	☐	☐
3. avoid complaining about ideas given by the students?	☐	☐	☐	☐	☐	☐
4. volunteer ideas on the problem being focused upon?	☐	☐	☐	☐	☐	☐

The critique form (Fig. 2) on brainstorming was derived from the immediate criteria listed for the teacher. Hopefully, if the teacher used these behaviors in his teaching the ultimate objective would be achieved. The ultimate objective for the teacher might have been that the teacher use brainstorming to teach students to expand their thinking. The ultimate objective for students might be that they produce ideas without worrying about criticism. (This is only one way to achieve the ultimate objective. Other methods could exist and should be defined for teacher use.) For certification purposes this instrument would give the teacher and evaluator common reference for performance and evaluation, respectively.

The critique form (Fig. 3) for the students was based upon the criteria listed for the students. Note that there are more behaviors than criteria. The reason is that the criterion states that the students will follow the rules of brainstorming. There is one criterion but there are four rules of brainstorming that must be stated in behavioral terms.

Both critique forms should ensure a more acceptable and accurate evaluation of the teacher. The teacher will know what is expected of him and will be looking for expected behaviors from the students. The evaluator will know what behaviors to expect from the teacher and students.

As shown in the title of this position paper, evaluation based upon a systematic analysis of teaching with appropriate instruments developed as described in this report, used for certification based upon teacher performance, should equal certification of qualified teachers.

REFERENCES

Ash, Lane C. et al. Instruments and Procedures for the Evaluation of Vocational/Technical Education Institutions and Programs. (Pilot Test Edition) Washington, D.C.: National Study for Accreditation of Vocational/Technical Education, American Vocational Association, 1971.

Burdin, J.L. and Reagan, M.T. (Eds.) Performance-Based Certification of School Personnel. Published by ERIC Clearinghouse on Teacher Education, 1 Dupont Circle, N.W., Washington, D.C. and Association of Teacher Educators, 1201 Sixteenth St., N.W., Washington, D.C., February 1971.

Byram, H.M. and McKinney, C. Evaluation of Local Vocational Education Programs. (2nd ed.) East Lansing, Michigan: Michigan State University, March 1968.

Center for the Study of Evaluation, 145 Moore Hall, University of California, Los Angeles, California 90024.

Conroy, W.G. and Cohen, L.A. A Brief Description of the Massachusetts-New York Evaluation Service Center. Paper presented at the AVA National Convention, December 7, 1970.

Evaluation of and Accountability for Graduate Programs in Vocational and Technical Education. 5th Annual National Vocational-Technical Teacher Education Seminar. Columbus, Ohio: The Center for Vocational and Technical Education. (Report and Cassette recordings available), 1971.

Ferguson, E.T. (Ed.) Emerging Teacher Education Curricular Models, Fourth Annual National Vocational-Technical Teacher Education Seminar. Columbus, Ohio: The Center for Vocational and Technical Education, January, 1971.

Giese, Harlan E. et al. An Evaluation of the Effect of State Reorganization on Vocational Operations. Report presented at the AVA National Convention, December 5, 1971.

Performance Evaluation Project. Sponsored by the New Jersey State Department of Education Board of Examiners and conducted by Rutgers College, Department of Education, Rutgers University.

Starr, Harold et al. A System for State Evaluation of Vocational Education. Columbus, Ohio: The Center For Vocational and Technical Education, May 1970.

TEACHING STRATEGIES IN TECHNICAL EDUCATION

John B. Moullette
Research & Development Specialist
The Center for Vocational & Technical Education
The Ohio State University

Strategies utilized in the trasfer of concepts, knowledges, and skills from the teacher-instructor to the learner are influenced to a great deal by the educator's understanding and beliefs about the purpose of education and training and the role of the educational institution in the American society. A strong and positive belief in American public education as a social institution for the preparation of people for life roles ought to cause the classroom, shop, and laboratory educators to utilize a myriad of teaching and transfer strategies to deliver appropriate and relevant information and skills to the educator's constituents.

The "on-line" educator performs the roles of specialist, purveyor, coordinator, and chief administrator. The technical educator - as a specialist - possesses expertise, knowledge, skills, and competencies unique to a particular career field; it is the responsibility of the teacher- instructor - now serving in a new career field - to deliver those skills and competencies to a new set of learners. Accordingly, the technician turned technical educator now must coordinate instruction and learning activities while maintaining an educational environment. Therefore, competencies are required in the areas of reading, writing, speaking, analyzing, organizing, and communicating since these strategies generally are employed by most teacher-instructors to transfer information and deliver concepts, knowledges, and skills.

Delivering information hinges on those strategies which are the natural extensions of lecturing, showing films, demonstrating, and involving students in the teaching-learning process. Learnings are reinforced in students' minds by practicing, problem-solving, reporting, simulating "real-life" situations, role-playing, and testing ideas, concepts, knowledges, and skills. Initial strategies and their natural extensions for delivering concepts are based in communications theory and are reinforced by the use of books, films, models, mock-ups, simulators, tools and equipment, and the use of human and material resources.

Teaching-learning strategies also include: verbal interaction, programmed instruction, teaching machines, shop and laboratory work, supervised instruction, teacher-worker examples, field trips, and interviews. Other resources which will assist teachers and learners are: graphics, projected, mechanical, and electrical training aids, chalk boards, bulletin boards, and flannel boards.

Teacher-instructors preparing to go before a group of learners ought to follow - as an organizational strategy - the four steps teaching-learning program, which includes presentations, demonstrations, application of concepts and skills, and evaluation. The transfer strategies previously enumerated can be included in this one organizational strategy

which may be rearranged by variable according to a teacher-instructor's individualized performance style.

Transferring information to students requires much more than lecturing on the teacher's part or "hands-on" work on the student's part. It requires the utilization of a myriad of teaching strategies and initiative and imagination on the part of both the teacher-instructor and the learner. The adage "if the student hasn't learned then the teacher hasn't taught" is only partly true.

An outline of the major topics covered follows:

OBJECTIVES

This session of the EPDA Technical Education Teacher Training Institute will:

1. Provide an orientation to the role of the teacher and the education profession.
2. Outline the unique characteristics of the teacher.
3. Analyze the skills required of the teacher in the transfer of the information.
4. Introduce the four (4) step teaching-learning strategy.
5. Exemplify teaching performance.
6. Identify the components of information transfer and delivery.
7. Establish the base for curriculum development.
8. Identify the components of unit development and lesson planning.
9. Problem solve teaching situations.
10. Introduce related concept considerations.

Orientation to Role and Profession

The Purpose of Education and Training
The Role of the Educational Institution
Student Characteristics
Faculty Role and Faculty Needs
Curriculum and Program
  a) Scope
  b) Sequence
  c) Development
  d) Implementation
Teaching Methodology
  a) Delivery Strategies
Educational Methodology
  a) Media
Principles of Learning

The Teacher is . . .

1. A specialist with:

   expertise
   knowledge
   skills
   competencies

2. A purveyor of competencies.

3. A coordinator of:

   instruction
   learning

4. A chief administrator of:

   classrooms
   shops
   laboratories
   learning stations
   support areas

To experience success in the teaching-learning situations, the teacher must demonstrate competencies at:

1. Reading:

   comprehension
   interpretation
   silently
   orally

2. Writing:

   instructions
   assignments
   reports
   legibly
   concisely/precisely

3. Speaking:

   interpersonally w/individual/groups
   audibly
   coherently

4. Analyzing:

   problems
   situation
   tasks
   jobs

5. Organizing:

   learning activities
   learning environments
   curricula/lessons
   assignments

6. Relating with others through:

   communications
   human relations
   leadership

7. Transferring information through:

   presentations
   demonstrations
   application of concepts/skills
   evaluation

The delivery of information hinges on:

1. Content, i.e., those knowledges, attitudes, concepts, and competencies deemed important to the students and prepared for transfer.

2. Strategies for communicating content, e.g., lecturing, showing films, demonstrating, listening to guest speakers.

3. Activities for involving students in the application of content, e.g., not-taking, looking for key ideas, practicing, reporting, problem solving, simulating "real" situations, role playing, and testing.

4. Resources for reinforcing strategies and activities, e.g., books, films, models, mock-ups, simulators, tools, and equipment, human and material resources.

Curriculum Development and Lesson Planning

Curriculum Development - long range planning
Occupational / Task / Job analysis

Major Blocks
Minor Blocks

Job Blocks
Operations
Related Information

Job Sheets
Information Sheets
Procedure Sheets
Assignment Sheets

Job Descriptions
Job Specifications
Job Classifications

Monograph
Course of Study
Course Outline

Syllabus
Units
Lessons - Modules

Progress Charts

Lesson Planning - short range planning
Formatting and Outlining

Program
Unit
Lesson #
Instructor

Occupation
DOT #
Date
Teaching Time

Goals:
- Analysis
- Application
- Synthesis

Objectives:
- Expected Behavior
- Influencing Conditions
- Acceptance Criterion

Training Aids
Texts
References

Resources
Tools/Equipment
Materials

Introduction
Presentation
Demonstration
Summary

Application
Review
Evaluation
Assignment

The Teacher and Teaching

Strategies

Verbal Interaction
Programmed Materials
Teaching Machines

Resources

Graphic Training Aid
Projected Training Aids
Mechanical Training Aids

Shop/Laboratory Work
Supervised Instruction
Teacher/Worder Example
Field Trips/ Interviews

Electrical Training Aids
Chalk Boards
Bulletin Boards
Flannel Boards

Sources: Fryklund, Verne C. Analysis Technique for Instructors, Bruce Publishing Company, Milwaukee, 1965.

Rose, Homer C. The Instructor and His Job, American Technical Society, Chicago, 1966

CONCEPTS FOR CONSIDERATION

Education for employment
Technical Education
Learning reinforcement
Cultural and intellectual differences in students
Role of the employer
Occupational awareness
Occupational orientation
Occupational exploration
Occupational preparation
Placement - Follow up
Career Education
Ability Testing
Job entry skills

THE ROLE OF COMPUTERS IN INDIVIDUALIZING INSTRUCTION

John J. Hirschbuhl
The University of Akron

Instructional Systems

Instructional systems have for many years been defined in a variety of ways. However, each and every one of these definitions, in one way or another, attempted to illustrate how the teacher was to educate the student. It is not surprising that the overwhelming majority of older instructional systems dealt with students as a group rather than as individuals. Today, due to recent philosophic and technological break-throughs, instructional systems have been designed to tailor instruction to fit the special requirements and capabilities of each learner as an individual. Newer systems provide for the individualizing of instruction by considering the possible consequences and effects of instructional actions on the interrelated parts of the learners history of learning actions and outcomes. To do this a great deal of data must be gathered and continually up-dated as a part of the instructional program.

It would be impossible to implement such a system if the electronic computer was not available to the educator. The computer can be and is used to monitor and apply instruction to each learner as an individual by implementing the type of instructional system that has just been discussed. Such an application of the computer to instructional systems is called Computer Assisted Instruction, CAI. Through the use of CAI the computer becomes the vehicle which permits educators to provide the type and amount of instruction that best fits the learner's needs and abilities at a given moment.

There may be some readers who believe that schools, without CAI, have been providing such individualized instruction as a part of their daily function. However, close investigation of the facts reveals that schools have not been tailoring instruction to meet the individual student's learning needs.

For many years the question of, "How much instruction does a student need?", has been answered through apportioning the same amount of instruction to all whom the law has decreed shall be educated. It is not surprising that many to whom this type of instruction has been offered, have rejected it. Some of those rejectors went on to become captains of industry; there were others who became society's burden.

Recently, perhaps, because of the increased expense of permitting so many of the nation's young to become further burdens to the society, there has been a cry for an individualization of instruction.

Educators have, for a considerable period of time - perhaps the last fifty years recognized the need for the individualization of instruction. These same educators, however, when pressed for a workable individ-

ualized system of instruction have thrashed back and forth between platitudes and despair in their attempts to provide such a system.

The source of their problem appeared to stem from both philosophical and technological inadequacies. Fortunately, for all parties involved, recent developments have produced a possible solution to both parts of the problem.

Conditions of Adequacy

The philosophical question appears to be adequately dealt with by applying the systems approach to basic questions that have arisen due to society's demand for an individualized approach to instruction.

The systems approach, as applied to education, centers on the formulation of objectives, the structuring of content, and the design and ordering of instructional tasks which are adaptive to unique student conditions. This approach requires justified rules of instruction as well as testable systems of hypotheses for guiding curricular decisions.

The above conditions provide a means of analyzing cause-effect relationships between instructional actions and learning outcomes. One of the major benefits that is resulting from the above conditions of adequacy, is that educators are beginning to be able to determine strategies and courses of action that hold some promise. Hopefully, they will permit systematic improvement of knowledge structures associated with the problems of individualizing curriculum and instructional design.

Requirements for Learning Environments

In order to apply a systematic approach to curriculum and instruction problems it is necessary that a two stage process be followed.

Stage I The Planning Stage

A. Precisely state goals and objectives.

B. Formulate a set of procedures which are aimed at the attainment of the stated goals and objectives.

C. Formulate procedures in such a way that the action necessary to carry out such procedures can adequately by performed by the one who states the procedures or by some other agent.

D. Make explicit what will count as evidence that the particular goal or objective has been achieved.

Stage II The Action Stage

A. Utilize the procedures stated in Step B of Stage I.

B. Evaluate the results of the action to determine the effect of the instructional procedures on the achievement of the particular objective for which the procedures were designed.

The above two stage process is referred to as the goal referenced model. This type of model gives the educator the means of:

1. being accountable for curriculum and instruction actions
2. conducting evaluation of curriculum and instruction actions
3. identifying weaknesses in the curriculum and instruction program
4. identifying points at which changes in goals, objectives or procedures should be made.

The Technological Question

In order to conduct a precise and systematic set of instructional actions, it is necessary that there be some sort of instructional delivery system that will have the ability to provide a responsive learning environment which is capable of adapting to each individual's learning style, capabilities and interests. Such a vehicle would not only guarantee that curriculum and instruction systems be highly individualized, but also that they be based on the requirement that the learner by involved in providing the instructional actions that are tailored to his needs. If the student is to take part in this process he must become part of a system that permits continuous updating and "on-line" changes based on the outcomes of specific student initiated actions. Such a system can be thought of as a feedback system, since all future moves made by the instructional vehicle are to be based on the moves fed back to it by the student. Until quite recently such a medium was not available.

As the reader might suspect, the vehicle with the best present potential for monitoring such feedback is the computer. What in fact is needed is a computer to assist the student and teacher in carrying out the various aspects of the instructional system so that the goal referenced model can be implemented.

The result of such an application is that the computer can be used as an instrument to assist in the design and implementation of sophisticated curriculum and instruction packages that will relate instructional actions to learning outcomes. Because of the computer's responsive capabilities, the instructional actions as well as the learning outcomes can be tailored to meet each student's learning needs, at a given moment, on the basis of student responses to the instructional actions.

Capability of Being Responsive

What is needed for an instructional system to be responsive? This question digs into the heart of what has been wrong with American Education for the past 100 years -- it has not been responsive to the majority of

students to whom it has been applied. The reason for this is that up until quite recently there has been a lack of an educational technology -- that is, a body of information relating instructional actions and learning outcomes. Much of what has been passed off as education for everyone has been operated on a trial and error basis. Educators could not predict learning outcomes because they could not control instructional inputs. What has been needed is an instructional vehicle that would be able to control part, or all of the selection, sequencing, and evaluation of instructional meterials. This type of control would make it possible to provide a curriculum that would allow for different ways of motivating children, different ways of presenting sequences and different opportunities for children to "skip" ways of doing things - all based on their responses to particular aspects of the instructional program. In short what has been needed is a means of individualizing instruction based on the monitoring of feedback.

The feedback should be used as a guide to pacing and sequencing instructional materials. Control of the pacing and sequencing should be based, as noted earlier, on the student's response to the instructional materials. What, in fact, such a system should provide is a private tutoring effect.

In the absence of feedback there is no way to provide a private tutoring effect, since there is no way to account for the effect of instructional actions or curricular decisions. Furthermore, it is suspected that the amount of feedback that can be monitored is highly dependent on the type of vehicle used for the monitoring. For example, if a single teacher is required to monitor the resulting learning outcomes emitted by students to particular instructional actions it is quite probable that the amount of monitoring done on student's learning outcomes will be proportional to the degree to which the teacher can be responsive to each student's learning moves at a given moment. Due to the human characteristics of teachers and the number of students they are assigned, the amount of monitoring done on each student tends to be small. The question becomes, "How can we make each teacher many, and every student one?"

The computer with its capability to control processes through the feedback method is the vehicle that can provide an answer to the above question. In order to realize and maximize the benefits of such a process, teachers and computers must become educational partners. As a result of this partnership, students will receive the appropriate blend of classroom instruction and computer assisted instruction necessary to meet their individual educational needs. Realistically, this approach leads to an adaptive educational system that is keyed to the needs of each student.

Capability for Being Adaptive

To adapt means --- to fit or adjust to --- if an educational system is to have the capability of being adaptive it must have:

1. something to adapt to
2. a systematic plan for adaptive actions

3. a vehicle which is capable of conducting the adaptive actions.

The something that the educational system is to adapt to is the student's learning needs. These learning needs should be the basis on which educational objectives are developed. Success in attaining the objectives and, also in modifying them, depends to a large extent upon the adequacy of careful planning at many levels. The difficulties of careful planning, in the typical school setting, are almost insurmountable under existing conditions. The problem is compounded by the many components that must be taken into consideration on a day to day, moment to moment basis. It is not surprising that the normal human being does not possess the built-in kind of file, storage, and retrieval system needed for taking into account all of the components involved in the planning and executing of an adaptive instructional program that will meet each student's immediate learning needs. However, the computer with its large storage capacity and its seemingly immediate means of delivering and using appropriate information from its files can serve as the vehicle for assisting the educator in planning and executing necessary adaptive instructional actions.

In addition to the computer's data retrieval capabilities, there is another facility that the computer has which contributes toward the creation of an adaptive type of instructional system. This facility is the computer's branching capabilities. Branching, as done by a computer consists of the computer, on the basis of some particular type of a decision or group of decision, determining which path or paths the computer program will take in order to help a student achieve a particular learning outcome.

For example, suppose that a computer has been fed information on a student and has continued to update that information as the student goes through some instructional program. The computer can make decisions as to what instructional objectives a student can or needs to achieve at a given moment in order to achieve certain broad objectives that have to do with some particular course of study. In order to do this the computer will reference:

1. The student's characteristics such as:

   i maturational factors
   ii general ability factors
   iii specific pre-skills
   iv motivational needs

2. The various aspects of the subject matter such as:

   i the range of subject matter
   ii the specific topics that are to be covered
   iii the sequence in which the topics need to be covered

3. The objectives themselves

   i.e. has the student already achieved the objective and if so to what particular level of excellence has he done so?

In order to provide such an adaptive system as outlined above certain curricular components must be constructed. The first component needed is the specification of educational objectives in behavioral terms. The second component needed is a set of instructional strategies or paradigms that are based on some type of feedback and the basic tennants of learning theory. The two components must be related because, to answer the question, "What should the learner be able to do when he finishes a unit of instruction?", the educator must also consider how or through what activities the learner must be guided in order to demonstrate what he can do. By keying instructional actions to student characteristics, subject matter, and instructional objectives, the computer is able to consider whether or not a student is:

1. not ready
2. ready, or
3. more than ready to achieve a particular instructional objective.

Although all three states of readiness are of interest to those who proport to teach, it is the third aspect which is of particular interest to this writer. Condition number three refers to the type of student who has already achieved a particular objective and hence has no need for the particular instructional sequences associated with such an objective.

It would be interesting to know how many of the students we as teachers "successfully teach" actually needed the instruction to begin with. The computer with its extremely capable memory and branching capacity can make decisions based on student responses to certain key questions and then branch around objectives that have been achieved by students without the aid of particular instructional sequences. The following paradigm can be used to illustrate how a computer could be programmed to achieve an adaptive type of instruction.

The instructional paradigm illustrated in Fig. 1 is a feedback type of model. There is no way for a student to proceed to the next objective without achieving the objective with which he is currently involved. In addition to this instructional aspect it should also be noticed that there is no way for the student to receive instruction on a particular objective if he already possesses the attributes connected with the objective. In this case he is branched by the computer to the next appropriate objective. The savings in teacher and student time and the increased learning efficiency that should result is a topic well worth investigating. The reader is urged to carefully study the model illustrated in Fig. 1. Such study should reveal to the reader the adaptive capabilities of such instruction, as well as the need for a computer to monitor such a process.

The Role of Computers in the Design of Adequate Instructional Systems: (A General Overview.)

In the development of an Instructional System one seeks through sequencing to determine an arrangement of experiences that makes ideal use of theory and technology to ensure desired learning outcomes. The

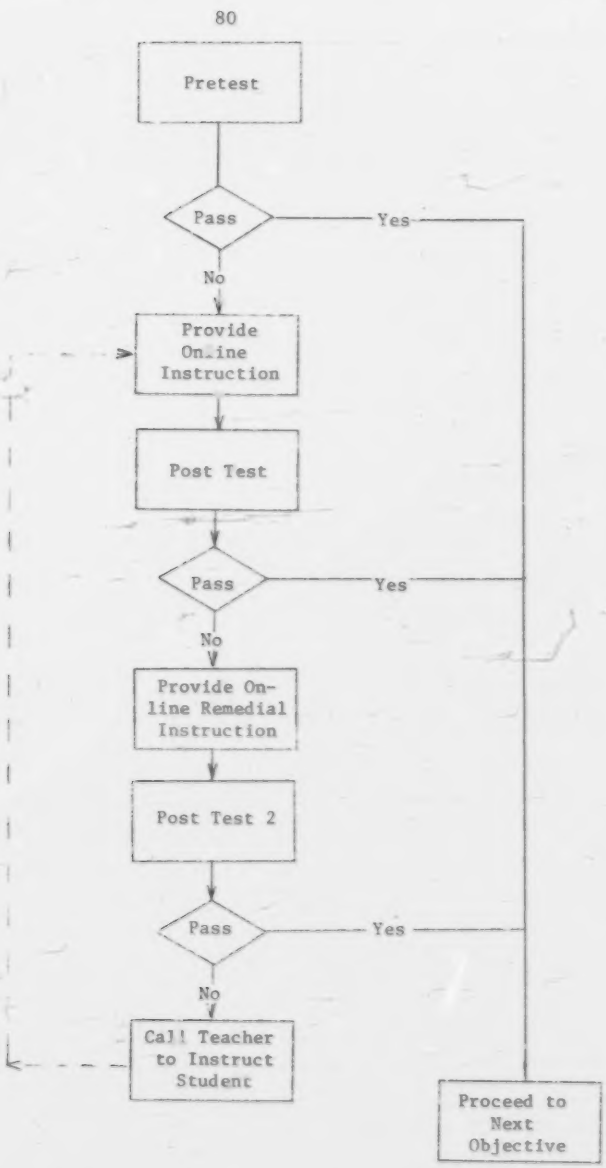

Pretest
Pass
Yes
No
Provide On-line Instruction
Post Test
Pass
Yes
No
Provide On-line Remedial Instruction
Post Test 2
Pass
Yes
No
Call Teacher to Instruct Student
Proceed to Next Objective

Fig. 1

decisions, processes, and contingencies of the system must all be made explicit, so that failures in the system can be pinpointed and corrected. An adding benefit of making all the aspects of the system explicit is that this type of approach makes it possible for the computer to become a vehicle for implementing the system's prescribed actions.

The purpose for such an arrangement is to provide instructional systems which are adaptive to student needs. The adaptability evolves from the variable manipulation for which the system and hence the computer allows. Under such circumstances the computer allows a single variable to be manipulated at a given moment in time to determine its effect on final learning outcomes. It is through continued manipulation and the evaluation of the effect on instructional variables, that continual enhancement of the system as a whole can be achieved. At the core of such an approach is the feedback model, it is the corner stone on which the CAI system is built.

The Closed Loop System

One effect which the systems approach and CAI has on the instructional process is that it forces a closer interdependence between theory and practice. In fact the development of CAI systems begins with the translation of, what learning psychologists have told educators about how children and adults learn, into the precise plan that is required to produce a CAI lesson.

The following figure depicts the basic design of CAI system which is designed to bring theory and practice together in such a way as to ensure that decisions, made at each step, are capable of refinement and continual updating.

The procedural flow illustrated in Fig. 2 illustrates how the system is studied and implemented. In this type of system, the process of instruction as well as the content are subject to refinement. Study Fig. 2, the process will reveal how, with the aid of computer, each subsequent decision has a reflexive impact on previous events. The capacity of such CAI systems to make finer and finer differentiations based on the experience of the learner allows "tuning adjustments" to improve instruction. This tuning effect is an automatic outcome of such a system. Decisions are made and keyed to the data that is collected. Each step is effected by every other step; therefore all steps are effected by the current inputs to the system from all pertinent sources. It is not surprising that such a system of instruction would not be possible if it were not for the almost unlimited monitoring capabilities of the computer. Under such a system it becomes the educator's responsibility to design, plan, and evaluate the summary results of instruction. It is the computer's responsibility to implement and monitor such instruction. In a sense the computer becomes an extension of the educator's skill.

The computer provides the vehicle through which the educator can get the student to make the appropriate move at a time when it is most

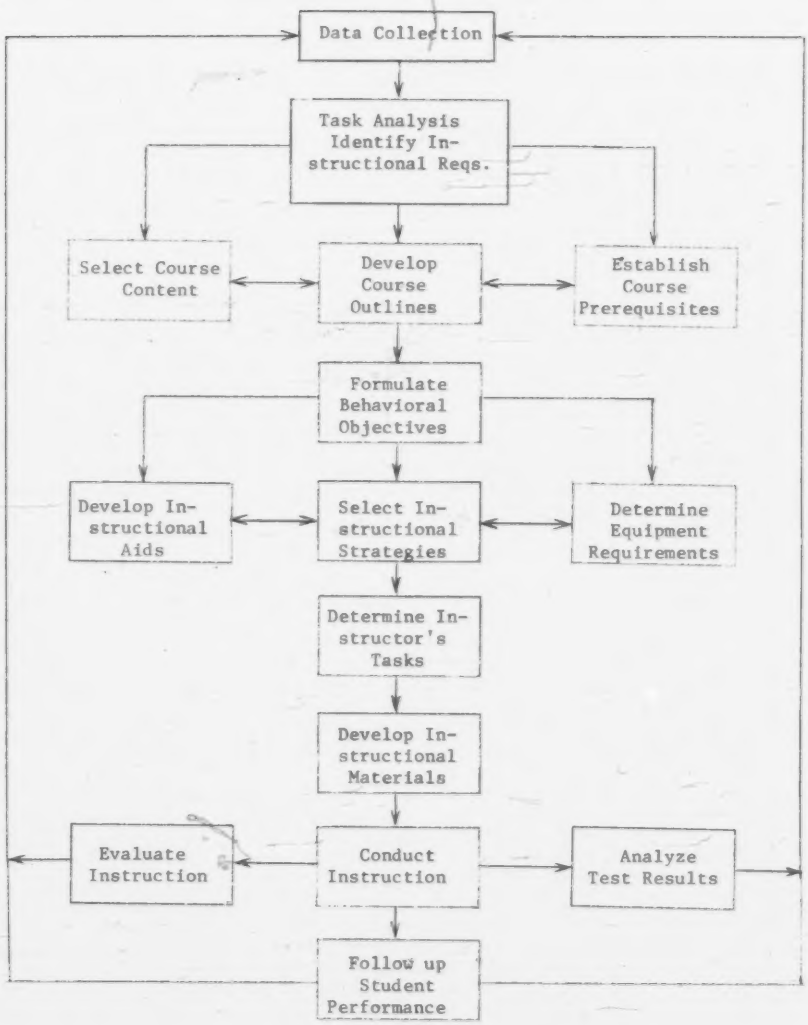

Data Collection
Task Analysis Identify Instructional Reqs.
Select Course Content
Develop Course Outlines
Establish Course Prerequisites
Formulate Behavioral Objectives
Develop Instructional Aids
Select Instructional Strategies
Determine Equipment Requirements
Determine Instructor's Tasks
Develop Instructional Materials
Evaluate Instruction
Conduct Instruction
Analyze Test Results
Follow up Student Performance

Fig. 2

instructionally profitable for the student to do so. The very survival of education and hence civilization may well be dependent on the type of increased learning efficiency provided by CAI.

Education in the Future Tense

Alvin Toffler in his book Future Shock has quite aptly pointed out that man is headed for a mass psychological and sociological breakdown if he does not find some means of increasing the efficiency of his decision making process. The speedup is necessary in order to keep pace with the rapidly moving life style that has been attributed to the technological age that we live in. The interesting question that seems to surface is, "Have educators recognized this problem, and if they have, what are they doing about it?"

There seems to be ample evidence that educators have recognized the problem. For example: What is or has been initiating the changes in education that we have witnessed over the last ten years? In the past, cultural and social needs have caused changes in education. Today, there is a new force; the rapid development of educational technology and in particular, the development of computer assisted instruction (CAI). What CAI actually is when all the jargon is cleared away, is the programming of a computer to give individualized instruction to a multitude of students simultaneously. The power, speed, and versatility of the components of today's CAI systems is a true testimonial to the fact that today's educators are dealing in a very effective way with the problem that Toffler has delineated so well in his essay on Futurism.

Further evidence that this claim can be supported, is the fact that the number of people designing and using computers and learning to understand their uses is increasing rapidly. In addition to this encouraging sign is the fact that the cost per unit of instruction has continually decreased over the last several years and shows signs of decreasing to the point where it will become unfeasible for schools not to partake substantially in this technological breakthrough which literally puts a well informed tutor into the educational framework of every student.

The fruits of this technological development have appeared in the schools. Several school systems are already turning to CAI in the hope that it will help solve the problems of mass education through providing an educational system that will speed up the intellectual development of all students by tailoring instruction to meet the individual needs of each and every student. Such adaptive education will as a necessary part of its construction lead to a more efficient use of student and teacher "learning time." It is through this dramatic speed up in the learning capacity of the future student that man's decision making or thinking process will be speeded up to meet the increased demands of civilization in the future tense. It is, in this writer's opinion, the best known possible way of helping the next generation avoid the inevitable future psychological and sociological crack-up that Toffler refers to as the "crisis of futurism."

It is the technology that can increase or decrease a multitude of society's burdens in the future. Which of the two courses that is followed may well depend on the path that educators travel through the technological mazes of our time.

SELECTED READINGS

1. Atkinson, R.C. and Wilson, H.A. Eds. Computer Assisted Instruction, New York: Academic Press, 1969.

2. Hicks, B.L. and Hunka, S. The Teacher and the Computer, Philadelphia: W.B. Saunders Company, 1972.

3. Hirschbuhl, J.J. "CAI - A Right Hand and A Third Arm." American Secondary Education, Vol. 2, No. 2, pp. 20-30, 1972.

4. Oettinger, A.G., with Marks, S. Run, Computer, Run. Cambridge: Harvard University Press, 1969.

5. Mager, R.F. Preparing Instructional Objectives. Palo Alto. California: Fearon Publishers, 1962.

6. Heimer, R.T. :Computer Assisted Instruction." Proceedings National Conference on CAI. Pennsylvania State University, University Park, Pennsylvania, 1968. The National Council of Teachers of Mathematics, 1969.

7. Hansen, D.N. Development of CAI Curriculum in Computer Assisted Instruction and the Teaching of Mathematics.

GRADES AND GRADING SYSTEMS

Isadore Newman
University of Akron

The grading of students has long been a problem at all levels of education. Assigning a grade is a very complex procedure which includes many judgements and evaluations. When we grade a student in a course we hope that the grade is an accurate reflection of that student's achievement. The major problem is deciding upon stable and valid measures that yield this information.

There is also great disagreement among teachers when it comes to methods of assigning grades. Some teachers feel very strongly that grades should be a sum total of the academic achievement demonstrated on tests. Others consider classroom behavior and attitudes along with tests in arriving at a grade. Still others give no tests and rely soley on apparent attitudes and their "gut reactions" towards the student. Then of course we always have teachers who pride themselves on giving very few A's and the teachers who are known for giving almost every student an A.

Another decision making factor influencing the assigning of grades is the stated purpose of the course. In a driver education course one expects a great deal of very high grades. In other courses, such as screening courses for pre-med students, there are relatively few high grades. These courses attempt to eliminate the lower caliber student and only select the "cream of the crop" for advanced study. For these reasons, and for many others, it is apparent that one marking system can not fulfill all needs.

NORM REFERENCED PROCEDURES

There are two major philosophies dealing with grading. One is norm referenced and the other criterion referenced. Norm referenced is based on the underlying assumption that one wishes to judge a particular student in comparison with other students and differentiate between their abilities. Therefore, teachers who use norm referenced procedures will assign their grades in such a manner that a grade will clearly indicate the relative position of the student to other students in his group. In this system an A generally means that the student has learned the material better than almost every one in the class. A B would indicate learning better than most but not as well as the A's, and so on down to the F's who have acquired the least amount of knowledge in the group.

When using norm referenced procedure one generally assigns grades to approximate a normal distribution. One apriori decides upon the number of A,B,C,D, and F that will be given, usually with an equal number of A's and F's, B's and D's and a majority of C's. Generally, it is calculated so that about 60% of the students receive C, 15% receive B's and D's, and 5% A's and F's.

There are several advantages to a norm referenced system. Students who you might want to differentiate between for possible preferential treatment or extra help are clearly indicated. For example, if a student is doing very well he may be steered toward advanced work. Students who are in the lower 20% of the class can be easily identified and assigned to remedial classes.

There are also several disadvantages to this system. One of the major criticisms is that by definition it imposes failure on a certain percentage of students. It also assumes that the level of learning should be normally distributed, which is frequently an incorrect assumption. A case in point is a graduate class in education at a southern university. On a particular test, the lowest grade in the class was a 92%. Since the professor was using a norm referenced grading system, the 92% was a failing grade. Another disadvantage worth noting is that while this system indicates the student's relative position if the class it does not contain any information about how much or what the student has learned.

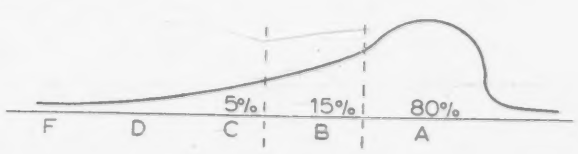
CRITERION REFERENCED PROCEDURES

The other major method of assigning grades is known as the criterion referenced procedure. This procedure is based on the underlying assumption that everyone can get an A if he meets the specified criterion. The grades of B,C,D, and F are determined by the varying degrees of mastery of the stated objectives.

The criterion procedure for assigning grades has become more popular in recent years. This may be due in great part to the increased use of behavioral objectives by classroom teachers. By using behavioral objectives the specific criterion that one wishes the students to obtain are specified clearly for the benefit of both students and teacher. If all students meet the specified criterion for a course, it then becomes very difficult to justify assigning any grade other than an A.

Unlike the norm referenced procedure in which you would tend to have a bell shaped (normal) distribution of grades, the criterion referenced distribution tends to be skewed so that most people get A's and B's and very few get F's.

Popham (1970) has suggested that when using the criterion referenced procedure for assigning grades, absolute successful teaching of the subject matter would result in every student earning an A. Generally the distribution that represents successful teaching tends to be skewed in the following manner:



Some of the advanteges of using criterion referenced procedure are that when used properly, they tend to clarify for the student what will be required of him during the course of study in specific terms. This knowledge tends to minimize ambiguity and it allows the student to allocate his time more efficiently in terms of the course objectives. Another advantage is that in criterion referenced procedures the system of assigning grades does not require the failure of a certain percentage of students, as does the norm referenced procedure. This may produce a psychological advantage for students since they are aware that potentially everyone can earn an A. Maybe the most important advantage is that the criterion referenced tests provide information about what has been accomplished. In other words, it indicates in an "absolute sense" the objectives the students have mastered, where as norm referenced grading procedures indicate the relative class position of mastery but not what has been mastered (the "absolute" degree of mastery).

The major disadvantage of criterion referenced procedures is that they do not provide a clear method for differentiating between students of differing abilities. Another major problem is that it is difficult to put into objective form all that the teacher would require the student to know for a particular grade. However, this is a prerequisite requirement for the effective use of criterion procedure. Once the aims of the course are given to the student as behavioral objectives, even if they are not fully adequate, the teacher finds it very difficult to justify not standing by the original objectives, as his criterion for assigning grades.

Almost all grading methods can be classified into either norm and/or criterion grading procedures to differing degrees. It is unlikely that any one procedure will fit all one's needs. When deciding on a method of assigning grades, the teacher should not become functionally fixed on one or the other general method. The purpose of the course should be the major consideration and it should dictate the grading procedure adopted. For example, if the most important purpose is to determine whether or not a student can accomplish a particular task or do a particular job, then criterion procedures are indicated. If the major consideration is to determine who is the best qualified to do something, out of a particular group, then norm procedures would be most appropriate. If one is interested in identifying from all people who are capable of doing a particular job, the person who could do it most efficiently, then a combination of criterion and norm procedures are indicated. The criterion procedures would determine all who are capable of doing the task and the norm procedures would indicate the most capable one(s) in the designated group.

There are at least four popular, specific methods for determining grades. They can be regarded as subsets of norm or criterion procedures to differing degrees. These methods are: pass-fail, contracting, ability grading, and grading on the curve.

PASS-FAIL:

Pass-fail is the most radical type of criterion grading. The student either meets the stated objectives or he does not meet them and he fails. There is no degree of differentiation between those who have partially

fulfilled the objectives or between the students who fulfilled them on the first try and those who fulfilled them on the tenth.

This method appears to be gaining popularity in many school systems today. One of the arguments for it is that the traditional divisions between A and B, B and C, C and D, r D and F, are so artificially constructed that many are beginning to wonder if they serve any real purpose. Maybe, more importantly this system seems to be most appropriate when it is necessary to learn the subject matter being taught as a prerequisite for material presented at the next stage in the learning process.

CONTRACTING:

There are various methods used in contracting, but it can be basically thought of as the student playing an integral part in determining the amount of material he can and will accomplish for a particular grade. This technique is both criterion and norm referenced, since it can provide information on what and how many objectives the student has mastered. One can also determine the relative position of this student compared to others in the group.

When using this method one should decide upon the objectives that one wishes to teach. These objectives should then be listed in order of difficulty. Grading can be decided upon in several ways. They can be determined by the number of objectives completed, the level of difficulty of the objectives completed, and/or the number of objectives completed compared to the other students in the class.

Some people feel that the contracting system has many psychological benefits. The student may feel his opinion is valued since he is actually involved in the decision making process to determine his goals for the course. He may also be asked to help determine the objectives to be learned. This is likely to produce positive attitudes the student has toward the course and its relevance, thereby helping maximize the learning-teaching situation.

ABILITY GRADING:

Ability grading is a method in which grades are assigned according to a student's individual progress and potential. Ideally, this may be the most effective way to grade since it theoretically should maximize the student's motivation while helping him learn the required skills at his own pace. This is the only grading system that fully takes into consideration the growth rate of individuals and does not try to superimpose a schedule for uniform learning.

While this system is intuitively appealing and seems to be a logical approach, there are major shortcomings. First of all, when using this system, one must determine the student's potential as accurately as possible. This is generally done by using testing procedures such as achievement, diagnostic, and intelligence tests, and by examining actual past performance. The evidence indicated that none of these procedures is very reliable but

past performance may be the best indicator. However, if a teacher starts off with an inaccurate assessment of the student's abilities, which is highly possible using these procedures, then using ability levels for assigning grades is not nearly as good or efficient as it first appears to be.

GRADING ON THE CURVE:

Grading on the curve is a totally norm referenced procedure which is extremely useful when one is interested in differentiating between students, based on relative accomplishments. Using this system, grades are ranked from highest to lowest and a predetermined percentage receive A's, B's, C's, D's, and F's. The greatest proportion of students generally receive C's, and equal proportion receive B's and D's, and the smallest proportion receive an equal number of A's and F's.

This grading procedure should not be used when a grade is supposed to indicate if a person can do a particular job or perform a particular task, since it does not present information in terms of absolute achievement. It only represents relative achievement in camparison to the rest of the class.

A SUGGESTED GENERALIZED GRADING PROCEDURE

One can not overemphasize the importance of adopting a grading system that is fair to students and can be justified to anyone concerned. It if is perceived as being fair then students are less likely to express hostility toward the grades earned and there is a great likelihood that the teacher will receive support, from other students and colleagues.

A method that is likely to increase the fairness of grading and decrease the ambiguity of how grades were assigned and what they mean is to set up a table of specification which clearly states the criterion for deriving grades. In test construction, Tables of Specifications have been used very successfully for developing tests that reflect the emphasis placed on the material which the student is being tested on. It has been used as the criterion to estimate the content validity of a test. This same concept can be applied to grading in general. Once spelled out, it allows the student to see for himself how his grade was arrived at. This decreases misunderstandings and possible conflicts. For example, it is not too uncommon for two students to obtain the same test scores and still receive different grades in a course. The difference in grades may be the result of different attitudes exhibited by the students, differences in the amount of class participation, or many other things.

If other things besides test scores carry weight in determining grades, these other considerations should be made explicit. The student should be informed of all of these considerations and told what percentage of their grade will depend on them.

The following is an example of a Table of Specifications in which all the criteria for grading is listed. Also listed is the proportion of weight

each will carry in the total grading procedure. The total weights of all the criteria must equal 100%.

TABLE OF SPECIFICATION FOR GRADING IN INTRODUCTION OF NURSING

CRITERIA FOR GRADES	WEIGHTS (% of total grade)
Test on First Aid Procedures	12%
Test on Medical Terms	15%
Laboratory Techniques	15%
Parent Care (temperature, bedpans, alcohol rubs, changing dressings & lines)	20%
Physiology	12%
Promptness	5%
Friendly but efficient service to patients	15%
Neatness in personal appearances	6%
TOTAL	100%

The percentage that each criterion will account should reflect the teacher's concern, and once specified, the teacher should be able to justify it. Once the teacher has established his criteria, he is obligated to bring this to the attention of his students. It also seems advisable to discuss the criteria and weights with the students involved and to be willing to consider student's opinions for revising the Table of Specifications if the suggestions are sound.

THE IMPORTANCE OF GRADING

Some critics of modern education feel that grades should be done away with. They have stated their belief that doing away with grades will lead to improved achievement. What they neglect to mention is how one is to determine if this improvement has occurred is one does not test or grade.

Another attack on grading is that they have become so over emphasized that many students feel the need to cheat so they can obtain higher grades. There is no evidence that grades in and of themselves produce this effect, but it is the misuse of grades by undo emphasis from parents, students, and teachers that distort the purpose.

Grades are necessary in our educational system. They are only as good as they are valid and meaningful. It is counterproductive to talk about eliminating grades, when one should be more concerned with improving the grading system so that the grades are more valid and assigned with greater care. One should be concerned with minimizing the ambiguity of grading and decreasing misinterpretation. We believe that using something like the Table of Specifications is a move in the right direction. One should be concerned with maximizing the efficiency of using grades, not in eliminating them.

CONCLUSION

All grading systems are subjective. They are based on evaluations

and value judgements. The job of the teacher is to decrease the ambiguity and subjectivity to the greatest degree that they are able.

Most grading systems can be divided into two broad categories, norm referenced procedures and criterion referenced procedures. The popularity of these procedures is to some extent a function of current fads. Right now criterion referenced grading is very popular. This is not a new concept in grading but it is currently receiving a great deal of attention.

The grading procedure one decides upon should be dictated by the purpose and needs of the course and not by fads in grading. It is generally inappropriate to only use one grading procedure at all times. They both have strengths and weaknesses that should be understood by teachers. With this knowledge teachers can use these procedures in combination or select the most appropriate for a particular situation.

Probably the most important consideration when deciding on a grading procedure is to minimize ambiguity. I believe the suggested Table of Specifications will be a great aid in accomplishing this. It clearly states the criterion on which grades are based and it makes these criterion public for the students to use to help interpret and evaluate his own grade.

There is another very important consideration when one is deciding on methods of assigning grades. One should try to make the grade as valid an indicator of success, in terms of the goals of the course, as possible. If grades are not a valid indicator then they have very little meaning and are potentially more harm than good. Like so many other things, grades and grading procedures are only as good as the people using them. If they are to be of value, the utmost care must be taken in justifying and assigning them.

REFERENCE

Ahmann, Stanley L., and Block, Marvin D. Evaluating Pupil Growth, 4th ed., Boston: Allyn & Bacon, Inc., 1971.

Ebel, Robert L. Measuring Educational Achievement, New Jersey: Prentice Hall, Inc., 1965.

Newman, Isadore, Frye, Bill and Newman, Carole. An Introduction to the Basic Concept of Measurement and Evaluation, Akron, University of Akron, 1973.

Popham, James W., and Baker, Eva L. Systematic Instruction, New Jersey: Prentice Hall, Inc., 1970.

THE EVALUATION OF INSTRUCTION

John Thompson
Lakeland Community College

It is reasonable to expect that educated people should be able to: tell you what they want to do; how they will go about doing it; and be able to provide evidence of their success, or lack of it. Once the task is identified it is possible to describe what should happen in measurable terms. The emphasis should be on measuring what one can because it establishes a positive attitude about the process. In my opinion, the process is more important than the product. Determining precisely the outcome of an activity is significant, and worthwhile, but usually the techniques for doing so are beyond the skills of a classroom instructor. However, disciplining oneself to ask questions about what is happening is a reasonable expectation. Processing feedback, evaluation, is necessary for any kind of growth activity, be it in the classroom or in ones personal life.

Classroom evaluation consists of four elements, supervisory, peer, self, and student assessment.

A. Supervisory Evaluation

1. The least effective, but necessary
   a) indicates interest
   b) keeps administration alert
   c) is a source of communication
   d) gives the teacher an opportunity to "show off."

2. Is acceptable according to the AAUP statement on academic freedom.

3. The supervisor must know beforehand what objectives will be achieved during the visitation
   a) several short visits may be preferable
   b) if possible, the instructor should issue the invitation.

B. Peer Evaluation

1. Excellent in theory, difficult to accomplish
   a) peers are reluctant to be critical
   b) "regular" responsibilities are time consuming
   c) schedules may conflict
   d) on a small staff there may not be a peer
   3) criticism from peers is hard to take

C. Self Evaluation

1. Another good theory
   a) if a person is not highly motivated it provides an easy out; if he is highly motivated he doesn't need it.

2. It can be used to encourage integration of personal instructional objectives with program or institutional goals.

3. Some would suggest that we are our own severest critics, thus demand too much.

D. Student Evaluation

1. Usually the least acceptable to faculty
   a) students are unqualified to judge
   b) unmotivated students would blame the teacher
   c) grades are too much of a factor
   d) grapevine process may serve the same purpose

2. Provides a formal, or controlled, process for expressing student opinions

3. Gives immediate feedback
   a) it is usually laudatory

4. Usually occurs at the end of the term
   a) consideration should be given to a mid-term evaluation

The public outcry for accountability in higher education, the surplus of college graduates, and the demand by students to have a greater voice in the education process all are relevant to evaluation. No longer will educators be permitted the sanctuary of the ivory tower or to evade the issue by saying "what we do can't be measured." It can be, and it will be, if not by ourselves, then by others.

AN ADMINISTRATOR LOOKS AT TECHNICAL EDUCATION FACULTY[1]

Leonard Slominski
Lakeland Community College

I hope that someday we can stop talking about Arts and Science faculty and Technical Education faculty, and talk simply about faculty. To be sure, we do look for some different things in the credentials and history and experience of a person who will be teaching technical courses, However, I am not so sure that what is good for technical faculty may not also be good for all faculty. Maybe the English teacher who teaches creative writing ought to have on record a published novel or a volume of poetry, or a list of sold short stories. Maybe a political science teacher should submit a downpayment of service in local government or politics before he's awarded a teaching contract. Maybe the psychology teacher should have to give evidence of the ability to govern his own life in some reasonable fashion. Maybe the composition teacher should be obliged to write an impromtu theme of some excellence, competence and proficiency as a condition of employment. Well I'm being just a little flip and purposely so, but only a little. I want to make a point and sometimes to make a point you have to be a little unfair, a little outrageous.

What I'm trying to say is that particularly in the two-year institution there may be considerably less need for the persistence of a dichotomous faculty. The nature of the charge of the two-year institution which was to take all kinds of people of all ages from where they are to where they want to go, within the setting of the 13th and 14th years, does not warrant dividing the faculty into camps of academic purists on one hand and plumbers on the other. Or of academically credentialed faculty on one hand and experiential credentialed faculty on the other. With the exception of the single purpose liberal arts college the two-year college, it seems to me, has less excuse for two sets of faculty than any other kinds of education institutions. Actually the difference in educational levels of the faculty is frequently not that great. No longer in the community college or the two-year institution does it need to be. Although we're getting more Ph.D.'s and Ed.D.'s in the two-year institution, I'm not sure that the institution needs these, at least not until we begin to get people who get their Ph.D.'s in the art of teaching.

Really, the difference between an Arts and Science faculty and a technical faculty is that there is some requirement and or desire that the latter have practical experience in their field. The reasoning, I suppose, goes something like this. The goals and objectives of technical education programs are to produce the two-year graduate who is immediately employable. Those instructors who had something to do with giving them that employment readiness ought to have some aquaintance with the real jobs and

---

[1]This paper has been edited from audio tape.

the real tasks and the expectancies of that field. Now you would think that such a tradition of change would appear to be logical and would appear not to be the champion or the voice in the wilderness. But in 1962 the American Society for Engineering Education published a document which was called "Characteristics of Excellence in Engineering Technology Education." You know that Technical Education was born in the Engineering technologies.

You will remember the critical scientific manpower shortage which alarmed our people when the Russians launched the first Sputnik and this forced us to seek nontraditional ways in which to "catch-up" in technological capabilities, and the two-year engineering technician was born. The other observational clusters, or technologies, came later, as other professions began to realize that what was good for engineering might also be good for them; the creation of paraprofessionals to assist or work with or extend the service delivering capabilities of the profession. What the American society for Engineering Education held out to be desirable characteristics of an engineering technology faculty became therefore desirable characteristics for all faculty. And I don't exaggerate the impact of that little book. When I first started into the field, when I lost that lofty status of being an English teacher, to become tainted by something that called itself technical, or occupational, or worse, vocational education, all of my colleagues carried a little book around in their pocket pretty much the same as an essay on civil disobediance was said to be carried around by the English laborists of the 19th century. It might be well for our purposes this morning to take a look at parts of that little book as it relates to faculty. It suggests that attributes desirable in the faculty of an engineering technology curriculum are identical to those desirable of all college teachers: Intelligence, a general interest in developing students, personal and professional integrity, a capacity for communicating ideas in oral and written form, a thorough knowledge of the subjects taught, and a relevance of supporting subjects, and skill in the fundamentals in the teaching-learning process.

It goes on to insist that all members of the Engineering Technology faculty be familiar with and sympathetic towards the goal of this type of education. Next in importance is the desire to teach at the Engineering Technology level, at the technical level, at the Associate Degree level. Two other parts of the statement are worthy of note, particularly as they have been incorporated by other agencies as standard for all other occupational education faculty. In fact, I'm reasonably sure that Max Lerner, Vice-Chancellor of the Board of Regents, who was scheduled to speak to you and I'm sure he did, must have alluded to the Regents new standards for approval of the associate degree program. The Regents standards, as they apply to technical faculty are simply a restatement of these things which I shall be reading from "Characteristics of Excellence." One, since engineering technology curriculum, by definition is of a college level, it is obvious that the proper proportion of the faculty should require at least his baccaleaurate degree. Since these curricula are so closely related to engineering it is equally obvious that the engineering technical faculty contain a substantial porportion of graduate engineers. It is

the committee's opinion that approximately half the members teaching in the technical specialty be graduate engineers or the equivalent. Two, since the engineering technical curriculum is to educate students primarily for specialized occupational areas it follows that a significant proportion of the faculty must have had relevant industrial experience and that this experience must be reasonably current. In some fast moving technological fields, experience over ten years old can be as much a handicap as an asset, says that book. The same one goes on to say that this, of course, leads to the important requirement that faculty members maintain technical competence in their fields. To foster this, faculty members should be encouraged to participate in technical and professional societies and to engage in work in industry and research. This is what it sounds like in the Regents new standards: Faculty members whose assignments are primarily in technical areas should evidence competency based on these criteria: 1) Formal education, appropriate to the specialization, usually including the bachelor's or master's degree or their equivalent, or certification. 2) Practical experience other than teaching in your appropriate specialization is demonstrated by full time employment, approximately five years, in the career area or some related field. 3) Evidence of involvement in the field of concentration through activity in professional associations, participation in seminars, workshops and formal course work.

Given the objectives for technical education and faculty criteria that has evolved as a consequence of those objectives, it is not surprising that 95% or more of technical faculty has come from business and industry and the professions. There is in fact no place else for them to come from. The name of the game is relevancy and currency. What this means of course, what it has meant for me, what it has meant for all technical education administrators, is that we have rarely hired teachers. We've hired something else. We've hired engineers, and nurses, and personnel managers and we hoped they could become teachers. It has been my pleasure to see how many of them have indeed become teachers, in the highest sense and in the highest tradition of that word. They've become teachers. How do you account for it? One, they want to. For them it is a career change that has come, in many cases, considerably later in life, five, ten, or fifteen years after graduation from college. Two, they know what they are preparing their charges for. In other words, their general objectives are very clear before them. They know, for example, what a technician is generally expected to know, and be able to do. Most technical faculty have the advantage generally of a laboratory, which means that they have a built in check, on the accuracy of their instruction. All teaching, if not confined to formal education institutions, and so many of these people have come to us with considerable teaching experience, short term experiences, in the shop, or in the office, then it is also true that we have given them some help. Years ago, before technical education came under the Regents, every new instructor was assigned a teacher trainer, at the insistance of the Department of Vocational Education. A visiting professor from the nearest state teacher trainer education center, spent a day on campus every other week generally, visiting classes, conferring with teachers, suggesting new approaches, recommending reading material, asking to see tests. He was a kind of one man methods course. Since then, institutions of higher education have recognized the responsibility to help train teachers for the technologies.

Technical education workshops and seminars have sprung up for first year teachers all over the country. This is a prime example of the kinds of things that can be done to help technical education faculty. More recently, Akron needs to be commended for a master's program for technical education teachers. In the final analysis however, the best teacher educator may be instructional evaluation: Supervisory evaluation, self-evaluation, and student evaluation. All of us, like Comrades of Lord Jim, carry with us an image of ourselves. And like Lord Jim, most of us will make huge efforts, sometimes even heroic ones, to protect that image, to keep it from slipping, to keep from losing face with ourselves. In most of us is a terrible desire to do well, to succeeed, and it is not otherwise with technical education faculty. It is not otherwise with any faculty. Very few of us want to stay in an environment in which we're not doing well. This sounds too good, I'm sure too pat. It may sound too much like too many of my technical education administrator brethren. You may have met some of them.

Because components of heretofore traditional education have made technical educators feel defensive, because technical educators are Johnny-come-latelies to the higher educational scene, and because some of them are not quite sure they really belong, they cover by overcompensating. They become very much like those who they think have made them suffer. To hear some of my brethren there are no problems. Technical education is the only valid kind of education, and we'd be closer to the best of all worlds if only everybody moved into technical education. Well, there are problems. One of the biggest problems is to have technical education faculty recognize the goals of this type of education. Most of my problem has been right there. Problems occassioned by the ex-engineer who mistakenly feels that he needs to reproduce himself to make another engineer in two years. I've heard, you've heard, he boasts of the textbook he's adopted for his dynamics class is exactly the one they're using in the junior year C&T at Akron, and it probably should not be.

There is another problem, and I hope it's becoming lesser. Although he, the technical education instructor, wants the acceptance and the appreciation and the respect of all his teacher colleagues, he sometimes fails to recognize that he is sometimes as myopic as those he accuses of having an unjustified and unwarranted sense of superiority. It's part and parcel of the same persecution complex of the technical education administrator I mentioned earlier. Particularly in an institution such as ours, a comprehensive community college.

The Arts and Science instructor proceeds as though the student in front of him will never work, will never need to make a living. And the other, the technical instructor, proceeds as though the student in front of him will never see a play, will never hear a symphony, never need to make a life. All need to recognize that they are engaged in merely different rather than greater or lesser kinds of activity. Merely different.

Let's talk about one faculty, composed of different kinds of background, different kinds of expertise, having a mutual respect for these differences: all of them, devoted to the needs and interests of students, students who have overriding needs, in order to achieve a sense of human worth, a sense of exultation, sense of being alive. There are two big needs: the resources to make a living and the resources to make a life.

PART II

THE MODEL

101

A MODEL FOR THE PREPARATION OF INSTRUCTORS FOR POST-SECONDARY TECHNICAL EDUCATION

EPDA PROJECT 72042

MICHAEL N. SUGARMAN
BILL J. FRYE
RICHARD J. KURY

COLLEGE OF EDUCATION
THE UNIVERSITY OF AKRON
AKRON, OHIO

JULY, 1973

INTRODUCTION

The recent and rapid development and growth of two-year colleges in Ohio in the form of community colleges, technical institutes, technical colleges, state general and technical colleges, university branches, and university community and technical colleges, with a multitude of technical education curriculum and courses, has created a critical shortage of properly trained technical education instructors. The need for these qualified technical education instructors at the two-year college level is well documented.[1]

The present source in Ohio for technical education instructors covers a wide spectrum. These sources range from highly qualified and experienced professional and technical personnel in industry, commerce, engineering, and nursing to those who have received their training in professional education in the areas of business education, vocational education, and industrial education. A significant number of retired armed forces technicians and public service (law enforcement, etc.) personnel have also been recruited. Very few instructors have been specifically prepared for teaching careers in post-secondary technical education.

One of the most overlooked and critical problems facing the growth of post-secondary technical education in Ohio is the lack of appropriate technical teacher education programs for the technical instructor. The University of Akron is the only institution in Ohio presently engaged in a specific program for training qualified technical education instructors.

---

[1]Robert Andreyka, "A Survey of the Educational Tasks of Ohio's Post High School Technical Instructors: Implications for Teacher Education." (Unpublished Doctor's dissertation, Kent State University, 1969) Chapters 1 and 2.

In the process of developing an innovative model the College of Education of the University of Akron, Akron, Ohio conducted a two phase technical Education Teacher Training Institute for new instructional personnel in public post-secondary institutions in the State of Ohio. The institute was comprised of both pre-service and in-service activities to give new teachers the necessary knowledge, skills, and abilities to function successfully as teachers of technical education in post-secondary institutions.

STATEMENT OF PROBLEM

The objective of this project was to develop a model for technical education teacher training which may be widely disseminated to other teacher training institutions. The results of this project will be reported to the Ohio Board of Regents, the Division of Vocational Education, the State Board of Education, the United States Office of Education, selected teacher training institutions, and the ERIC system.

It was anticipated that the model developed as a result of this project would be integrated into the state-wide program of teacher education as needed.

The need for the proposed Institute was evidenced by a recent (1971) statement by Robert E. Taylor and Aaron J. Miller, administrators of The Center for Research and Leadership Development in Vocational and Technical Education:

> One of the interesting educational phenomena of the past decade had been the burgeoning increase in enrollments in community colleges and similar post-secondary institutions. A substantial portion of these enrollments has been in vocational and technical education programs . . . . Accompanying an increase in post-secondary occupational education enrollments is the need for well-trained, post-secondary vocational teachers . . . . At present few states have certification requirements for the post-secondary occupational education teacher. Yet these teachers need relevant teacher education services as much as their high school counterparts. It is incumbent upon the state's teacher education program to work cooperatively with the local districts or institutions in providing appropriate pre-service and inservice training experiences relevant to the needs of post-secondary occupational education personnel.[2]

The University of Akron, as the only institution in Ohio presently engaged

---

[2]R. Taylor and A. Miller, "The Context of Vocational Teacher Education," in R. Evans, Changing the Role of Vocational Teacher Education (Bloomington: McKnight and McKnight, 1971) p. 127.

in the preparation of staff for post-secondary Technical Education programs and awarding a B.S. and M.S. in Technical Education, is well suited to conduct such a program. See Table 1 for program diagram.

Priority VI of the Ohio State Plan of Action for 1972-73 Vocational Education Personnel Development was the basis for conducting this project. Priority VI reads as follows, "to identify, develop, test and recommend for State adoption an innovative model for preparing instructors for technical education programs in technical institutes by July 1, 1973."

The overall objective of this proposal was the development of a model for technical education teacher training, a demonstration of that model over a period of approximately one year for thirty new technical education instructors, and the evaluation of the model.

A secondary objective of the project was the development of a monograph or guide on "Teaching in Technical Education" for new instructors.

Major Components

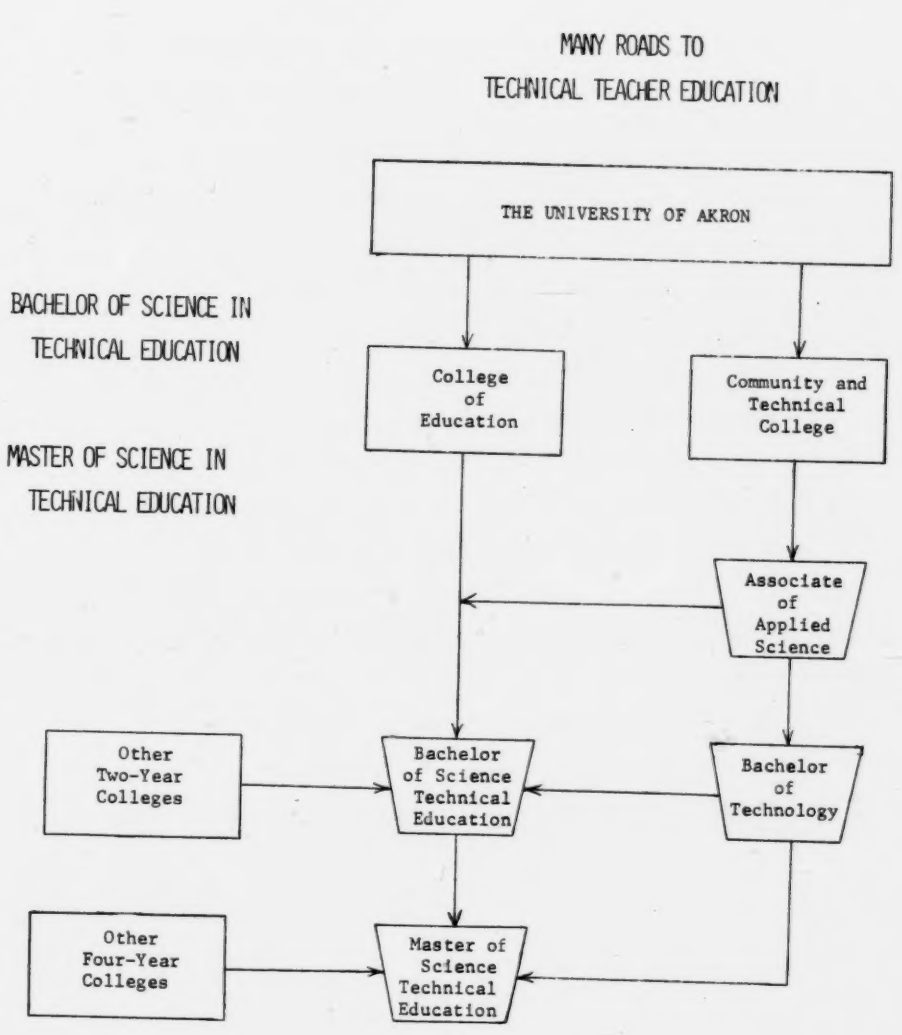
Phase I: The development and conduct of an intensive three week pre-service institute for thirty newly employed or first year technical education instructors from the northeastern regions of Ohio.

General Objectives:

1. To understand the role of the two-year college and technical institute as an institution; history, status, philosophy, and organization.
2. To understand the characteristics and needs of the two-year college and technical institute student.
3. To understand the role, problems, and needs of the faculty in the two-year college and technical institute.
4. To understand the various curricular components of the two-year college and technical institute.
5. To develop skill in the utilization of teaching methodology and educational technology.

TABLE 1

THE UNIVERSITY OF AKRON



Specific Objectives Related to Instructional Skills:

1. To discern the relationship of stated behavioral objectives as the key to the development of systematic instruction.
2. To be able to develop specific level behavioral objectives incorporating behavior, conditions, and criterion appropriate to the technical area.
3. To understand the basis for a unit treatment of instructional content.
4. To be able to specify behavior within the cognitive, affective, and psychomotor domains.
5. To be able to treat indirect measures of the affective domain.
6. To be able to prepare an overall instructional strategy for a course.
7. To be able to specify the phases of planning instruction.
8. To develop skill in the preparation of daily lesson plans.
9. To understand various systems of evaluation.
10. To distinguish between objective and subjective evaluation.
11. To understand weighting within an evaluation scheme.
12. To develop skill in the preparation of evaluative instruments.
13. To become competent in the utilization of selected audio-visual aids.
14. To become competent in the presentation of instruction.

Phase II: The development and conduct of two weekend follow-up seminars for the purpose of in-service teacher education for institute participants.

General Objectives:

1. To identify and treat common problems of new instructors.
2. To increase teacher effectiveness in the classroom.
3. To evaluate the participants of Phase I, evaluate their progress, and provide follow-up instruction as needed during the weekend seminars.

PROCEDURES

Intra- and Inter-Institutional Cooperation

This project provided the opportunity for representative personnel (new instructors) from many two-year institutions in Ohio to share a common experience. Selected staff from both the State Education Department and the Ohio Board of Regents participated in the institute. Lecturers were selected from several major universities as well as from within the University of Akron. The model developed as a result of this project will be disseminated widely to other institutions.

The Program

Phase I was conducted from August 7 through August 25, 1972 at the University of Akron, Akron, Ohio. This was an intensive three week program for newly employed technical education instructors in post-secondary institutions.

Students enrolled for a total of six hours of credit for the institute. There was no charge for tuition. Undergraduates enrolled for courses 580:470 and 580:471. Graduates enrolled for courses 580:570 and 580:571.

The morning sessions met from 9:00 to 12 noon each day for formal presentations, lectures, and discussions, while the afternoon sessions met from 1:00 to 3:00 p.m. each day for laboratory activities involving micro-teaching, curriculum development, the preparation of instructional materials, and experience in the utilization of audio-visual equipment.

Late afternoon and evening hours were unscheduled so that the participants would be free to utilize the extensive facilities of the library and other resources of the University.

A topical outline of the instruction for Phase I follows on the next page.

Phase II consisted of two weekend seminars for the participants of the institute. The first seminar was scheduled during the Fall quarter, while the second seminar was scheduled during the Spring quarter. Specific activities were developed as needs of the participants were identified. Each seminar included ten contact hours in instruction.

Field Experience

Field experience as such was conducted at the institution at which the participant was employed. The participant was supervised by the Dean of Instruction and by his Department Chairman or other appropriate institutional personnel. Evaluations were submitted to the Institute staff by the participant's supervisor.

TECHNICAL EDUCATION INSTITUTE -- Phase I -- Three Week Program

1. The Two-Year College and Technical Institute
   - A. Place in education, history, growth, and development
   - B. Two-year colleges and technical institutes in Ohio
   - C. The philosophy, role, and mission of two-year institutions
   - D. Organization and administration
2. Characteristics of Two-Year College and Technical Institute Student
   - A. Why he attends
   - B. Who is he?
   - C. Special needs
   - D. Disadvantaged students
3. Student Personnel Services in the Two-Year College and Technical Institutes
   - A. Counseling services
   - B. Student activities
   - C. Placement and follow-up

4. Characteristics of Two-Year College and Technical Institute Faculty
   A. Why he teaches in the two-year institution
   B. Who is he?
   C. Problems and concerns of new teachers
5. Professional Concerns
   A. Evaluation of teachers
   B. Ethics in the classroom and on the campus
   C. Professional associations
   D. Legal responsibility
6. Curriculum
   A. Instructional programs in two-year colleges and technical institutes
   B. Current developments
   C. The role of advisory committees
7. Teaching and Learning
   A. Instructional systems
   B. Teaching by objectives
   C. Instructional methods
   D. Instructional materials
   E. Instructional technology
   F. Evaluation and testing
8. Skill Development

   Afternoon sessions were devoted to micro-teaching, the use of A-V hardware, the preparation of instructional materials, and curriculum development.

Institutional and Systematic Change

The objective of this project was to develop a model for technical education teacher training which may be widely disseminated to other teacher

training institutions. The results of this project will be reported to the Ohio Board of Regents, the Division of Vocational Education, the State Board of Education, the United States Office of Education, selected teacher training institutes, and the ERIC system.

It is anticipated that the model developed as a result of this project will be integrated into the state-wide program of teacher education as needed.

Participants

The institute was to be limited to thirty participants. The participants were nominated by their employing institutions. The institute was designed for newly employed and first year instructors of technical education from the two-year colleges and technical institutes of Ohio. First preference was to given to instructors teaching in approved programs (programs approved and funded by the Division of Vocational Education). Final selection was made by the institute staff.

Participants were expected to attend Phase I from August 7-25 at the University of Akron, to attend two weekend seminars during the academic year, and to participate in the evaluation of their experience.

Criteria for Eligibility of Participants

The participants were expected to be eligible for employment in a post-secondary institution in Ohio to teach in one or more areas of technical education. The participants were nominated by their employing institution, therefore, conditions of work experience and educational background, in effect, were determined by the employing institution.

Participants enrolling for academic credit were expected to meet the requirements of the University of Akron.

Using the criteria set forth in sections H and I of the proposal, the

institute director and the assistant director made the final selection of participants from among the applicants.

Involvement

The institute staff developed the proposal only after careful consideration of the recommendations of the Division of Vocational Education, the Ohio Board of Regents, a statewide advisory committee representing technical education in Ohio, and several consultants.

Physical Facilities

The University of Akron provided the facilities normally available to students at the University. Classrooms and equipment were provided as they were needed. Lodging and subsistence was provided in University facilities.

Library Facilities

The library facilities normally provided for students at the University of Akron were available to the participants. In addition, special reserve collections were set aside for the use of the participants. Special bibliographies pertaining to the institute were prepared for the participants.

Assessment and Evaluation

(1) Assessment and evaluation activities were incorporated into the institute. The participants were expected to assess each day's activities on a day-to-day basis so that the staff could immediately correct any deficiency in the content provided during Phase I.

The immediate supervisor of each participant was expected to complete an evaluation at the end of the project.

The participants were also expected to evaluate the institute at its conclusion.

(2) The extent to which the stated objectives had been achieved were

evaluated by the participants, their employers, and the institute staff. Evidence was to be assessed through micro-teaching, classroom evaluation by supervisors, the self-evaluation of the participants, and the degree to which the following outcomes had been achieved:

A. Thirty instructors prepared to teach technical education at the post-secondary level.

B. A final report containing an evaluation of the project and a model for technical teacher education.

C. A monograph or guide on "Teaching in Technical Education" for new technical instructors.

(3) The above factors were fully assessed as the staff developed a model for technical education teacher education.

ANALYSIS

The primary purpose of this project was to develop, evaluate and recommend a technical education teacher training model for state adoption.

Once the project porposal had been tentatively approved by the State Division of Vocational Education, the institute staff met with an Advisory Committee of twelve members to determine appropriate objectives and decide on topics to be presented. Members of the advisory committee are included in the appendix of this paper. The members' areas of specialization included: Trade and Industrial Education; Home Economics Education; Distributive Education; Business and Office Education; Agriculture Education; Vocational Education; Technical Institutes; Technical Education and Community Colleges. The advisory committee members and the institute staff jointly determined the topics to be presented.

The Technical Education Institute Model was divided into two phases. First an intensive three week course of study in the understanding, development and utilization of the following topic areas:

1. The learning needs of the disadvantaged student
2. An introduction to vocational and technical needs
3. Adult learning applied to the two-year college
4. Individualizing instruction
5. Instructional systems
6. Teaching by using behavioral objectives
7. Teaching strategies and methods
8. Characteristics of the middle level working technician
9. Characteristics of the two-year college
10. Characteristics of the two-year college faculty
11. Professional education associations
12. Micro-teaching
13. Visual instruction
14. The Ohio Association of Two-Year Colleges
15. Two-year colleges in Ohio
16. Problems, issues, and recent developments in technical education
17. Legal responsibilities of instructors and professional ethics on campus
18. Planning for instruction and curriculum development
19. Student personnel services

20. The instructor as a counselor
21. Testing, evaluation and grading
22. Administrators' view of faculty and their evaluation of faculty

These topics were covered during classroom presentations and in many instances by hands-on experience in a laboratory situation.

The second phase consisted of two weekend follow-up seminars. These seminars were spaced during the 1972/73 academic year to provide assistance to the new instructors after they had the opportunity to attempt to utilize their new learnings in their teaching at their individual institutions, to reinforce their skills, and obtain feedback. The first seminar was conducted in Columbus, Ohio on November 17th and 18th (1972) and the second seminar in Hudson, Ohio on April 27th and 28th (1973). See procedure Timetable for activity listing. The objectives for Phase II were to evaluate the progress of the participants, identify their problems and provide needed follow-up instruction. Topics that were presented during Phase II were:

Seminar I a) The Teaching Skill of Brainstorming
b) Instructional Skills

Seminar II a) New Forms and Methods of Instruction
b) The Evaluation of Instruction

A schematic closed loop flow chart of the Technical Education Institute Model has been included.

Design Evaluation

The evaluation of this model took place continually throughout Phase I and Phase II of this model in the form of eight pre-determined questionnaire evaluation instruments. Some of these instruments were used only once while others were used daily. These instruments evaluated the students' perception of learning progress, personal background data, topics presented, speakers' effectiveness, student needs and opinion data. The instruments used, which are included in the appendix were:

PROCEDURE TIMETABLE

The University of Akron

Technical Education Teacher Training Institute

Program -- Phase I -- College of Education

Date	Time	Speaker	Topic
August 7	9:00- 9:30	Staff	Registration
	9:30-10:00	Dr. Caesar Carrino Asst. Dean	Welcome
	10:00-12:00	Dr. Michael Sugarman Dr. Bill Frye	Introduction and Orientation "The Now Colleges" - Film
	12:00- 1:00	Group Lunch	
	1:00- 3:00	Dr. Peter J. Hampton Director of Development Programs University of Akron	Learning Needs of Disadvantaged Students
August 8	9:00-10:00	Dr. Michael Sugarman	Technical Education
	10:00-12:00	Mr. Donald Beweley Division of Vocational Education State of Ohio	Vocational and Technical Education
	12:00- 1:00	Group Lunch	
	1:00- 3:00	Dr. Harvey Sterns Dept. of Psychology University of Akron	Adult Learning Applied to the Two-Year College
August 9	9:00-12:00	Dr. Marion A. Ruebel College of Education University of Akron	Individualizing Instruction
	12:00- 1:00	Group Lunch	
	1:00- 3:00	Mr. Donald Green Westinghouse Learning Corp.	Individualizing Instruction
August 10	9:00-12:00	Dr. Isobel L. Pfeiffer College of Education University of Akron	Teaching by Objectives ----Instructional Systems
	12:00- 1:00	Group Lunch	
	1:00- 3:00	Dr. Pfeiffer	"

August 11	9:00-12:00	Dr. John Moullette Center for Vocational & Technical Education Ohio State University	Teaching Strategies and Methods
	12:00- 1:00	Group Lunch	
	1:00- 3:00	Dr. Moullette	"
August 14	9:00-12:00	Dr. Angelo C. Gillie Dept. of Vocational Education College of Education Pennsylvania State U.	Characteristics of: Middle-Level Worker Technician
	12:00- 1:00	Group Lunch	
	1:00- 3:00	Dr. Gillie	Two-Year College Student
August 15	9:00-12:00	Dr. Gillie	Faculty Professional Associations
	12:00- 1:00	Group Lunch	
	1:00- 3:00	Dr. Frye	Micro-Teaching Lab.
August 16	9:00-10:00	Mr. Blin Scatterday Division of Associate Studies--Community & Technical College University of Akron	Ohio Association of Two-Year Colleges
	10:00-12:00	Dr. Max Lerner Vice Chancellor for Two-Year Colleges Ohio Board of Regents	Two-Year Colleges In Ohio
	12:00- 1:00	Group Lunch	
	1:00- 3:00	Dr. Frye	Micro-Teaching Lab.
August 17	9:00-12:00	Mr. Ralph Lundregan 3 M Graphic Systems	Visual Instruction
	12:00- 1:00	Group Lunch	
	1:00- 3:00	Dr. Frye	Micro-Teaching Lab.
August 18	9:00-12:00	Mr. Robert C. Weyrick and Panel Community and Technical College University of Akron	Problems, Issues, and Recent Developments in Technical Education

	12:00- 1:00	Group Lunch	
	1:00- 3:00	Dr. Frye	Micro-Teaching Lab.
August 21	9:00-12:00	Sen. Oliver Ocasek College of Education University of Akron	Legal Responsibility of Instructors and Ethics on Campus
	12:00- 1:00	Group Lunch	
	1:00- 3:00	Dr. Albert Pautler Dept. of Curriculum State University of New York at Buffalo	Planning for Instruction and Curriculum
August 22	9:00-12:00	Dr. Pautler	"
	12:00- 1:00	Group Lunch	
	1:00 - 3:00	Dr. Pautler	"
August 23	9:00-12:00	Dr. Carl Gaetano Director of Counseling Cuyahoga Community College Cleveland, Ohio	Student Personnel Services
	12:00- 1:00	Group Lunch	
	1:00- 3:00	Dr. Gaetano	The Instructor as a Counselor
August 24	9:00-12:00	Dr. Isadore Newman College of Education	Testing, Evaluation, and Grading
	12:00- 1:00	Group Lunch	
	1:00- 3:00	Dr. Newman	"
August 25	9:00-12:00	Dr. John Thompson Lakeland Community College Mentor, Ohio Dr. Leonard Slominski Lakeland Community College	Administrators View of Faculty--Evaluation
	12:00- 1:00	Group Lunch	
	1:00- 3:00	Dr. Michael Sugarman Dr. Bill Frye Mr. Richard Kury	Evaluation

Program -- Phase II -- Seminar I
Columbus, Ohio

Friday, November 17, 1972

4:00- 6:00 PM	Registration - Staff	
5:00- 6:30	Small Group Activity	
6:30- 7:30	Dinner Meeting	
7:30- 9:00	Dr. Charles Doty Department of Vocational Technical Education Rutgers University New Brunswick, New Jersey	"The Teaching Skill of Brainstorming" and "Teaching Techniques"
9:00-11:00	Small & Large Group Individualized Activity Time	

Saturday, November 18, 1972

8:00- 9:00 AM	Breakfast Meeting
9:00-10:30	Dr. Charles Doty - "Instructional Skills"
10:30-10:45	Coffee
10:45-12:00	Dr. Charles Doty - "Instructional Skills"
12:00- 1:00 PM	Lunch Meeting
1:00- 3:00	Dr. Charles Doty - "Instructional Skills"
3:00- 4:00	Evaluation - Staff
4:00	Adjourn

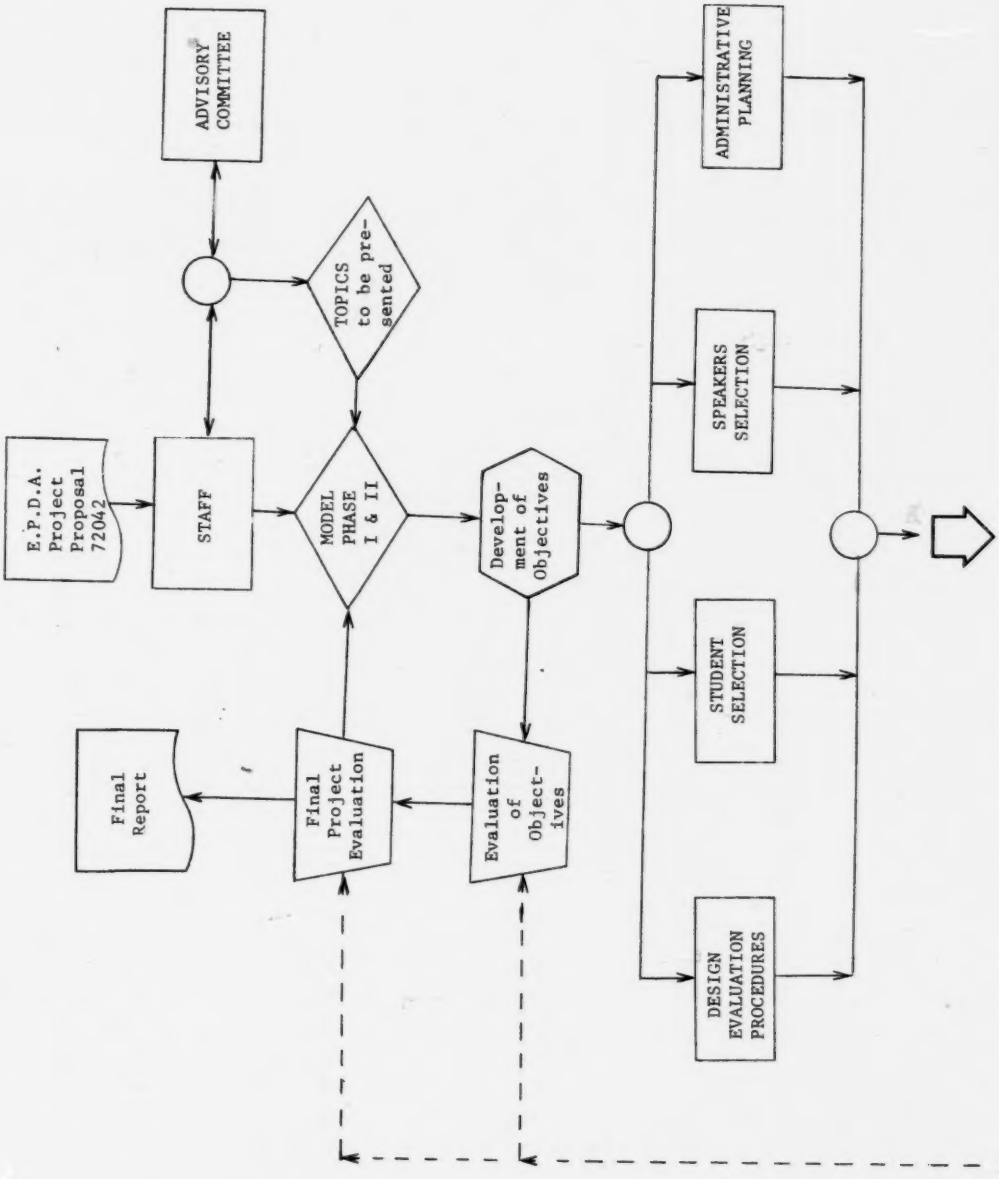
Program -- Phase II -- Seminar II
Hudson, Ohio

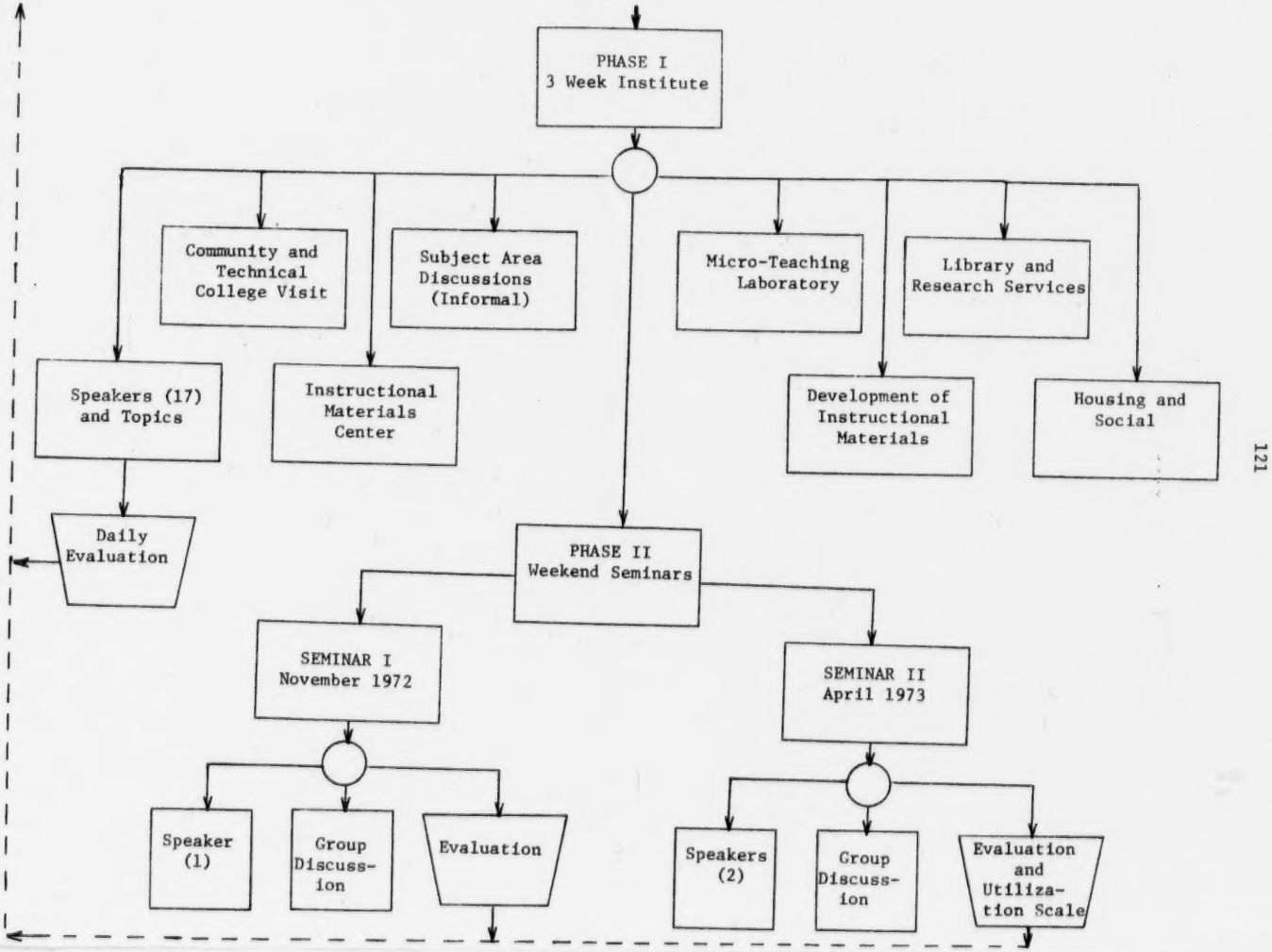
Friday, April 27, 1973

4:00- 6:00 PM	Registration - Staff	
5:00- 6:30	Small Group Activity	
6:30- 7:30	Dinner Meeting	
7:30- 9:00	Dr. John J. Hirschbuhl College of Education University of Akron	"New Forms of Instruction"
9:00-11:00	Small & Large Group Individualized Activity Time	

Saturday, April 28, 1973

8:00- 9:00 AM	Breakfast Meeting	
9:00-10:30	Dr. Ralph F. Darr College of Education University of Akron	"Evaluation of Instruction"
10:30-10:45	Coffee	
10:45-12:00	Dr. Ralph F. Darr	"Evaluation of Instruction"
12:00- 1:00	Lunch Meeting	
1:00- 4:00	Institute Evaluation - Staff	
4:00	Adjourn	


ADVISORY COMMITTEE
TOPICS to be pre-sented
E.P.D.A. Project Proposal 72042
STAFF
MODEL PHASE I & II
Develop-ment of Objectives
ADMINISTRATIVE PLANNING
SPEAKERS SELECTION
STUDENT SELECTION
DESIGN EVALUATION PROCEDURES
Final Report
Final Project Evaluation
Evaluation of Object-ives


PHASE I
3 Week Institute
Community and Technical College Visit
Subject Area Discussions (Informal)
Micro-Teaching Laboratory
Library and Research Services
Speakers (17) and Topics
Instructional Materials Center
Development of Instructional Materials
Housing and Social
Daily Evaluation
PHASE II
Weekend Seminars
SEMINAR I
November 1972
SEMINAR II
April 1973
Speaker (1)
Group Discuss-ion
Evaluation
Speakers (2)
Group Discuss-ion
Evaluation and Utiliza-tion Scale

1. Participant Personal Data Sheet (1)
2. Daily Evaluation Summary (20)
3. Knowledge Scale (4)
4. Activity Questionnaire (1)
5. Certification & Phase II Questionnaire (1)
6. Institute Evaluation (1)
7. Utilization Scale (1)
8. Final Evaluation Questionnaire and Comment Sheet (1)

( )* denotes times instrument used

The Participant Personal Data Sheet was used to gather prior and current data of each participant. This form was completed during registration of Phase I.

The Daily Evaluation Summary was used to evaluate topics presented as to content, value, and also used to measure daily attendance of the participants.

The Knowledge Scale evaluated the student's perception of his knowledge of each area presented. This questionnaire was given as a pre-test to Phase I. It was also employed as a post-test of Phase I and used again at both seminars in Phase II.

The Activity Questionnaire was developed cooperatively by the staff and several participants concerned with extra-curricular activities while living on campus. The extra-curricular activities increased participant intercation and favorably carried over into the workshop.

The Certification and Phase II Questionnaire asked questions regarding state certification of Technical Education instructors. It also asked students what they felt should be included in Phase II.

The Institute Evaluation measured the participants' overall impression of the entire institute. This questionnaire was given on the last day of Phase I.

The Utilization Scale was developed to measure the participants'

perception of utilizing the skills evaluated in the Knowledge Scale. This instrument asked if they were using the techniques that they had learned. It was given at the end of Seminar II, Phase II.

The Final Evaluation consisted of 29 questions concerning different phases of the institute. Space was allowed for comments on each question and participants were encouraged to critically evaluate each question.

As can be seen by the schematic flow chart all evaluation instruments were collected and evaluated with the Model's objectives for the final evaluation which appears in section V of this paper.

Student Selection

Student selection was based on the criterion outlined in the Participant section of this paper. All students were to be employed in a two-year college or technical institute in Ohio and recommended by their institution to participate. As time was of the essence in recruiting (less than a month) student recruitment was conducted through the mail and by phone to all two-year colleges and technical institute presidents and vice-presidents in Ohio. Through this process of recruiting 36 applications were received. Of the 36 applicants 34 participants were approved and accepted into the institute, however, only 32 actually participated. The two last minute withdrawals were due to personal and financial reasons.

Of the 32 participants, 14 met the criteria of newly employed or first year instructors. A total of 23 of the 32 participants had 3 years or less teaching experience in post-secondary technical education. The distribution of teaching experience in post-secondary technical education for this group indicated a median value of 1.5 years teaching in post-secondary education.

These 32 participants represented a cross section of 14 different

institutions in Ohio. Institutions represented were:

University of Akron Community & Technical College (6)
Cuyahoga Community College (6)
Belmont Technical College (4)
Stark Technical College (3)
Columbus Technical Institute (2)
Scioto Technical College (2)
Kent- Trumbull (2)
Kent- Salem (1)
University of Toledo Community & Technical College (1)
Lakeland Community College (1)
North Central Technical College (1)
Akron General Medical Center (1)
Hocking Technical College (1)
Owens Technical College (1)

( ) denotes number of participants from each institution.

The following areas of technical education specialization were represented:

1. Administration (3)
2. Allied Health (2)
3. Business & Distributive Education (9)
4. Engineering Technology (7)
5. Public Service (5)
6. Technically Related (6)

( ) denotes number of participants in specialization area

Speakers

Speakers were utilized both in classroom and laboratory activities. The topics discussed were pre-determined in the model by the Advisory Committee and institute staff and the speakers accordingly. The topics and order of topic presentation can be seen in the Procedure Timetable for Phase I and II. Each consultant or speaker was requested to prepare a paper based upon his or her presentation for publication.

Administrative Planning

The administrative planning of this model was conducted primarily through the institute staff and the University of Akron. It was the responsibility of the institute staff to plan, develop, coordinate and

implement all facets that either directly or indirectly affected the success or failure of this model. The following factors should serve as a guideline or checklist for other institutions planning to conduct a similar program.

Preliminary Planning: the following checklist was used by the institute staff before the implementation of Phase 1.

1. Advisory committee meeting to determine needs and overall plan
2. Letters to two-year colleges and technical institute presidents and vice-presidents requesting the nomination of their faculty members for institute participation. Mailing of publicity and brochures.
3. Ordering texts and supplemental handout material
4. Ordering films, film strips, slides etc.
5. Contact local Chamber of Commerce for maps, and local area interests
6. Contact speakers for program, assign topics, make housing arrangements
7. Review budget
8. Prepare press releases for publicity purposes
9. Develop evaluation instruments
10. Acquire room space for class, laboratories, micro-teaching and meeting rooms
11. Mail out acceptance letters to participants
12. Develop registration program for all participants to receive graduate or undergraduate credit for the institute
13. Determine need for on campus housing and make necessary reservations
14. Secure food service for both on and off campus for participants
15. Parking stickers.
16. Secretarial and duplicating services
17. Coffee breaks for morning session
18. Data collection system
19. Develop orientation packet with notebook enclosed
20. Develop student name, address, institution, teaching area list to be handed out
21. Develop extra-curricular activity questionnaire
22. Develop extra-curricular activity program
23. Prepare individual participant home-town press releases - with permission
24. Plan for on campus orientation of facilities
25. Plan group interaction through having meals together
26. Meal Tickets
27. Bibliography

Phase II

1. Correspondence with each participant at least twice before each seminar
2. Determine topic needs of participants to be discussed during seminars - develop questionnaire
3. Contact speakers and make final arrangements for program
4. Contact local Chamber of Commerce where seminar is to be held and request assistance

5. Develop completion certificate and send to participant in care of their college presidents
6. Decide on location, place and facilities available for seminars
7. Reserve meeting rooms, audio-visual equipment, and dinner rooms and food service
8. Reserve and confirm rooms for speakers, participants and staff
9. Develop and administer evaluation instruments
10. Review budget

Phase I

The first phase of the program will refer to the workshop that began August 7, 1972 and carried through August 25, 1972 at the University of Akron. The 19 participants that requested on-campus housing arrived on August 6, 1972.

The overall program of structured activities is outlined in the procedure timetable. Classes, laboratories and lectures were conducted five hours a day, five days a week for the three week period. Lunch hours were utilized for group interaction and discussion in a separate eating facility for participants, staff and speakers, in addition to instructional assignments.

Thr first morning of the workshop was devoted to registration, individual introductions of participants, staff members, and the objectives of the institute. This was followed by a general orientation of the university library, audio-visual, micro-teaching, learning resource center and college of education facilities which the participants would be utilizing to supplement their classroom experiences.

Following the introduction, the staff and speakers discussed the following topics related to the institute objectives:

1. Learning Needs of Disadvantaged Students
2. Technical Education
3. Vocational and Technical Education
4. Adult Learning Applied to the Two-Year College
5. Individualizing Instruction
6. Teaching by Objectives----Instructional Systems

7. Teaching Strategies and Methods
8. Characteristics of: Middle-Level Worker Technician
9. Two-Year College Student
10. Faculty Professional Associations
11. Micro-Teaching
12. Ohio Association of Two-Year Colleges
13. Two-Year Colleges in Ohio
14. Visual Instruction
15. Problems, Issues, and Recent Developments in Technical Education
16. Legal Responsibility of Instructors and Ethics on Campus
17. Planning for Instruction and Curriculum Development
18. Student Personnel Services
19. The Instructor as a Counselor
20. Testing, Evaluation, and Grading
21. Administrators View of Faculty--Evaluation

The above topics appear in the order of presentation. Speakers selected for each topic are outlined in the Procedures Table. A daily evaluation questionnaire was prepared and used by each participant to evaluate the topic content and to measure the degree to which the objectives were achieved.

The above instruction was complimented with laboratory activity in micro-teaching, equipment utilization, development of instructional materials, informal discussions by technical subject area, and a tour of Akron University Community and Technical College facilities. Individualized instruction and counseling was conducted by the staff when needed. An extra-curricular activity questionnaire was developed at the request of the dormitory participants to make full use of their time while in Akron. As a result of this questionnaire participants toured different local industries, attended local plays and other places of interest.

Phase II

The second phase of the institute refers to the two off-campus weekend seminars, conducted in Columbus and Hudson, Ohio. As outlined in the procedures section these two weekend seminars served the purpose of in-service

teacher education for the institute participants. It identified and treated common problems to increase their effectiveness in the classroom. These problems were determined through participants' direct feedback, the evaluation instruments used during Phase I, and the staff's perception of their needs. The following topics were presented at the seminars:

1. The Teaching Skill of Brainstorming, and Teaching Techniques
2. Instructional Skills
3. New Forms of Instruction
4. Evaluation of Instructors

Each weekend seminar consisted of 10 hours of classroom instruction, small group discussions and evaluation. Attendance at both seminars was considered part of the entire institute, however 2 participants were unable to attend Seminar I while 3 participants did not attend Seminar II. Questionnaires were mailed to those participants not in attendance and included in the final evaluation. Instruments employed for evaluation during the seminars were:

1. Knowledge Scale 3 & 4
2. Utilization Scale
3. Final Evaluation

During the period of Phase II the institute staff maintained correspondence with all participants to encourage participant feedback. It was during this time that completion certificates were mailed out to all participants in care of their respective presidents so that the effect of this procedure could be measured during Seminar II. The procedure timetable and Model flow chart outlines this entire phase.

EVALUATION

One of the primary functions in the development of the Technical Teacher Education Model was to evaluate the entire model after it had been tested on two-year college faculty. It is the purpose of this section to present our overall findings and the results of our eight evaluation instruments as they apply to our original objectives.

The Participants

The personal data and characteristics of the institute participants are summarized in this section. Of the 37 applications received, 34 were selected; but due to last minute cancellations the number was reduced to 32 participants. Of these 32 members, 14 technical institutes and community colleges in Ohio were represented (Table 2). The areas of specialization represented by the participants included Administration, Allied Health, Business and Distributive Education, Engineering and Industrial, Public Service and Technically Related teaching areas. The Technically Related areas are operationally defined as those teaching specialties that supplement technical curriculums, such as technical math, technical report writing, physics, etc.

The ages of the participants ranged from 25-60 years with a mean age of 40.1 years (Table 3). Of the participants, 41% were certified teachers in Ohio. All participants were high school graduates, 30 participants (93.7%) held Baccalaureate Degrees while 43.7% had earned Masters Degrees (Table 2).

It is generally assumed by technical educators that instructors should possess employment experience related to their technical area of instruction. Only 4 of the 32 participants did not have any experience

TABLE 2

The University of Akron
1972
Technical Education Institute

School Represented	Participants	%
University of Akron C&T	6	19%
Cuyahoga Community College	6	19%
Belmont Technical College	4	13%
Stark Technical College	3	9%
Columbus Technical Institute	2	6%
Scioto Technical College	2	6%
Kent-Trumbull	2	6%
Kent-Salem	1	3%
University of Toledo C&T	1	3%
Lakeland Community College	1	3%
North Central Technical College	1	3%
Akron General Medical Center	1	3%
Hocking Technical College	1	3%
Owens Technical College	1	3%
14 Schools Represented	32 Participants	99%

TABLE 3
TECHNICAL EDUCATION INSTITUTE
AGE AND EDUCATIONAL
STUDENT PERSONAL DATA

AGE	PARTICIPANTS
25	2
27	1
29	2
30	4
32	2
33	2
35	1
38	2
42	1
43	2
44	1
46	2
48	3
50	1
51	1
52	1
53	1
57	1
59	1
60	1

AGE

MODE: 30

MEDIAN: 40

MEAN: 40.1

PARTICIPANTS

I. CERTIFIED IN OHIO = 41%

II. H.S. GRADUATES = 100%

III. BACLAUREATE GRADUATES = 93.7%

IV. MASTERS GRADUATES = 43.7%

in business or industry, while 10 individuals had greater than 15 years experience. The arithmetic mean for years experience in business and industry for this group was 12.59 years (See Table 4). These figures show that 87.5% (28) of the institute participants have had employment experience. Unlike certification requirements for high school vocational education teachers, no consistent work experience criteria has been required for instructors teaching in Ohio's two-year colleges and technical institutions. The median value for our institute participants was 9.0 years of employment experience with 4 participants responding to no work experience. The data shows that 100% of our engineering and industrial participants had occupational experience before teaching.

The staff classified the teaching experience of the participants into two categories: (1) total overall years experience in education and (2) total teaching experience in post-secondary education. A significant number of participants, 41%, held teaching certificates in Ohio and many had prior teaching experience. The median values for overall years of experience in education for this group was 4.0 years while the actual value for teaching experience in post-secondary was 1.5 years. Twenty-three participants reported having 3 years or less teaching experience in post-secondary education. (See Tables 5 , and 6).

Pre-Test Self-Perception of Knowledge

The Knowledge Scale was administered to evaluate the participants' perception of knowledge of the following 21 skill related statements considered by the staff to be relevent to post-secondary occupational education:

1. Special learning needs of disadvantaged college students
2. Organization and services of the Ohio Division of Vocational Education

TABLE 4
TECHNICAL EDUCATION INSTITUTE

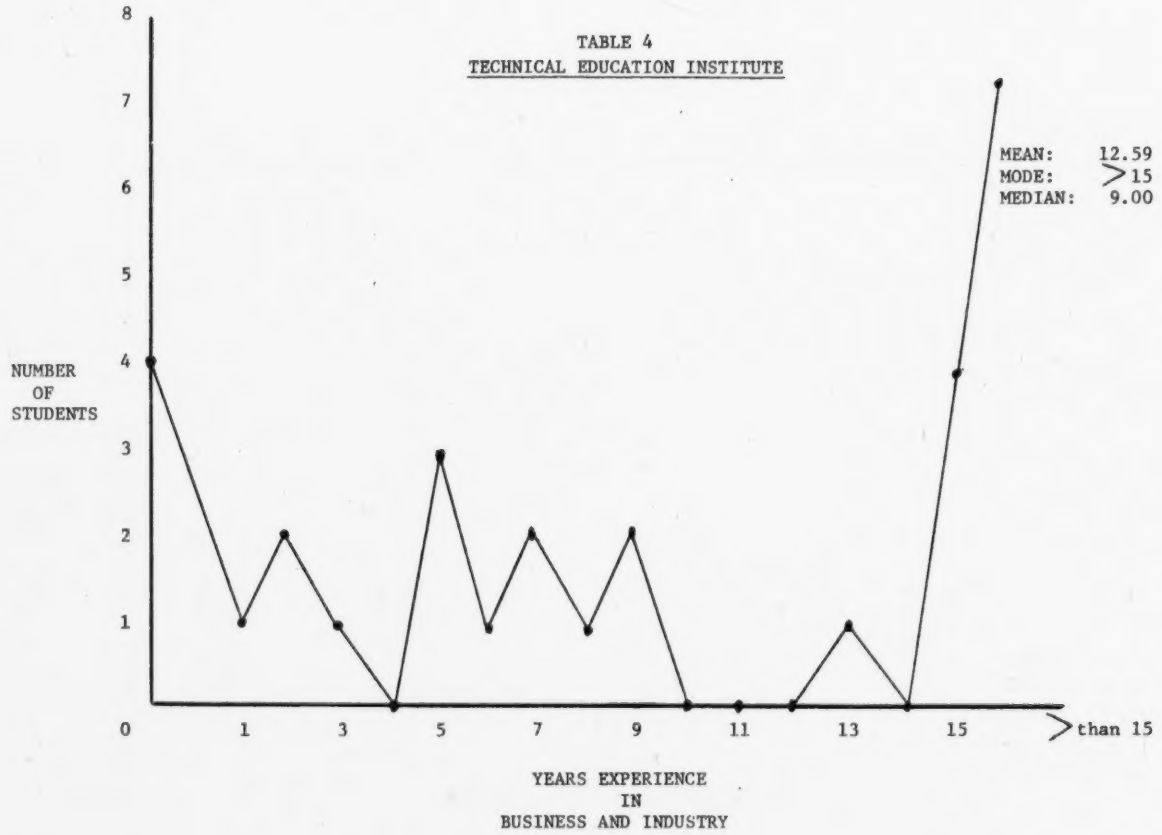


TABLE 5
TECHNICAL EDUCATION INSTITUTE

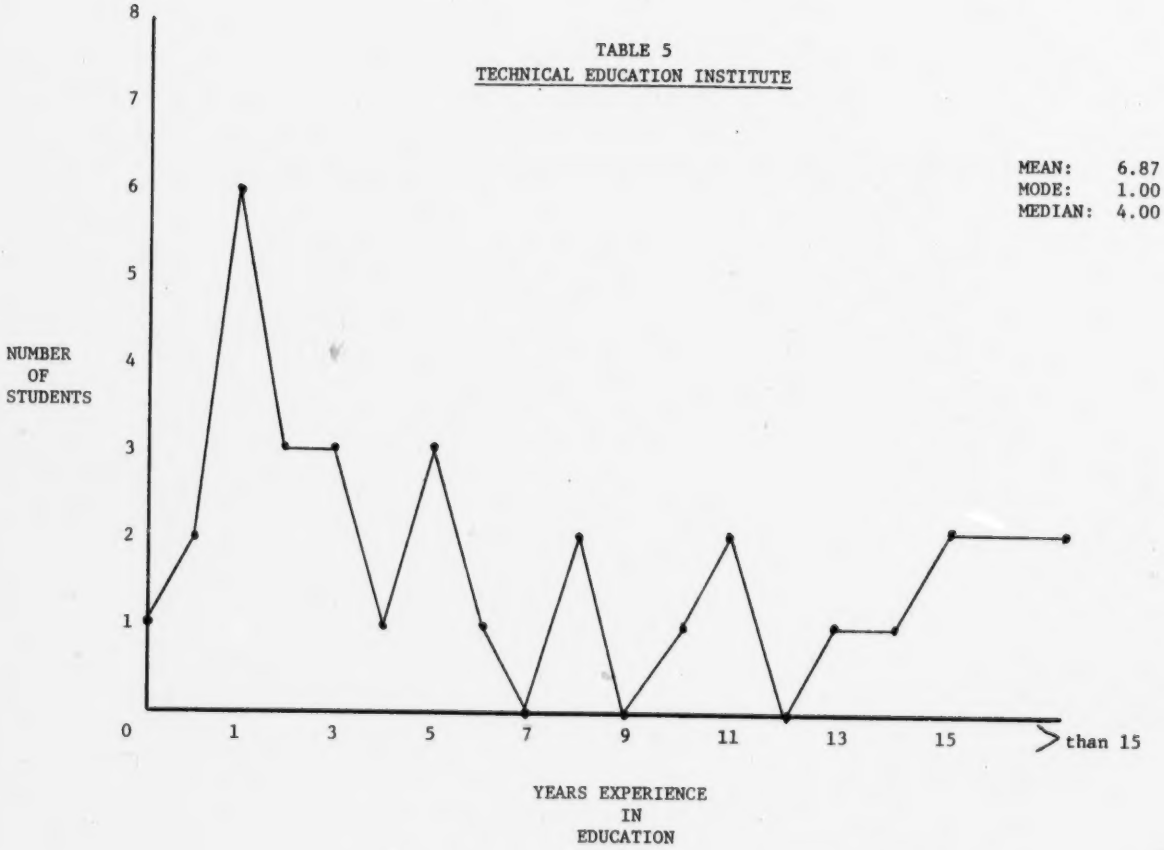
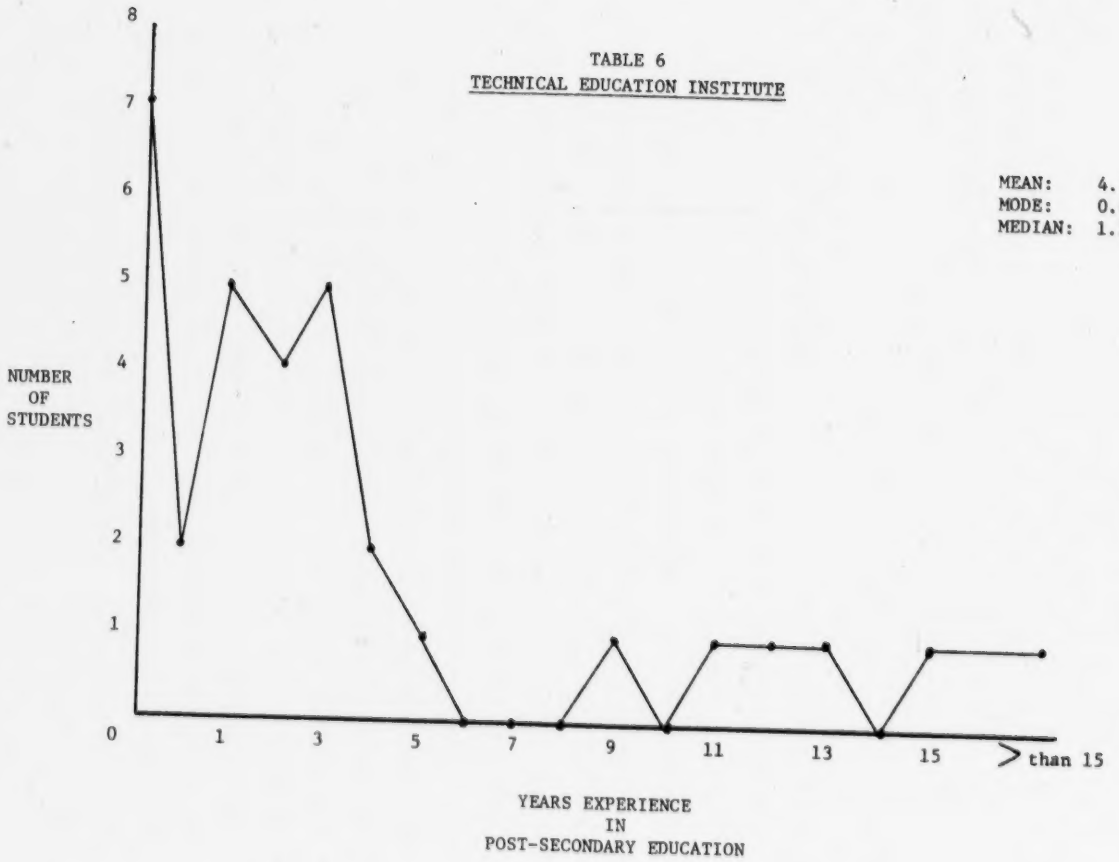


TABLE 6
TECHNICAL EDUCATION INSTITUTE



3. How adults learn: theory and application
4. Individualizing instruction
5. Utilization of behavioral objectives in instruction
6. Instructional systems
7. Teaching strategies and methods in technical education
8. Characteristics of Technical Education students
9. Characteristics of Technical Education faculty
10. Professional associations in Technical Education
11. The role of the Ohio Board of Regents in Technical Education
12. The preparation of audio-visual instruction
13. Recent developments, problems, and issues in Technical Education
14. Legal responsibility of instructors
15. Development of lesson plans, units, and courses of instruction
16. Development of technical education curriculums
17. Function of student personnel services
18. Guidance and counseling role of instructors
19. Testing, evaluation, and grading
20. Evaluation of instructors by administrators
21. Personal teaching skills

This instrument was first used as a pre-test for the Technical Education Institute. Participants were asked to rate themselves on a scale from 1 through 6. One (1) signifying "Not Knowledgeable" while (6) signified "Knowledgeable." This instrument was used at four different times: first as a pre-test August 7, 1972; second as a post-conference test on August 25, 1972: third as a post Seminar I test on November 18, 1972; and finally as a post institute test on April 28, 1973. The results presented here represent an eight month time span from the first day of the institute. Table 7, 8 and 9 show the change of response level for each time the test was administered. The base for change was that of the pre-conference test figures. All questions asked in regards to the perception of knowledge indicated an upward or positive value change from the pre-test. Seventeen of the 21 questions asked in the post-conference evaluation had a change greater than 1.00. Significant changes occurred with questions 1,2,4*,5*,7*,8*,9*,10,11,12*,13*,15*,17*,18*,20*, and 21*. Those questions not marked with an asterisk had an increase of 2.00 points or greater on the scale. Those marked with an asterisk had an average mean score greater than 5.00 on the 6.00 scale.

KNOWLEDGE SCALE

SEMINAR I - TABLE 7

Item No.	Pre-Conference Means	Post-Conference Means	△	Seminar I Means	△	Seminar II Means	△
1	2.41	4.59	+2.18	4.16	+1.75	4.19	+1.78
2	1.97	4.47	+2.50	4.23	+2.26	4.13	+2.16
3	3.53	4.66	+1.13	4.66	+1.13	4.72	+1.19
4	3.91	5.09	+1.18	4.60	+0.69	4.94	+1.03
5	3.69	5.50	+1.81	5.03	+1.34	5.19	+1.50
6	3.25	4.88	+1.63	4.56	+1.31	4.84	+1.59
7	3.41	5.16	+1.75	4.80	+1.39	5.03	+1.62
8	4.06	5.19	+1.13	4.80	+0.74	5.06	+1.00
9	3.84	5.16	+1.32	4.93	+1.09	5.09	+1.25
10	2.59	4.97	+2.38	4.36	+1.77	4.66	+2.07
11	2.69	5.25	+2.56	4.53	+1.84	4.75	+2.06
12	3.84	5.25	+1.41	4.70	+0.86	5.03	+1.19
13	2.75	5.03	+2.28	4.70	+1.95	4.91	+2.16
14	2.41	4.16	+1.75	4.13	+1.72	4.38	+1.99
15	4.66	5.41	+0.75	4.96	+0.30	5.13	+0.37
16	3.81	4.97	+1.16	4.44	+0.63	4.94	+1.13
17	3.47	5.03	+1.56	4.62	+1.15	4.59	+1.12
18	4.09	5.03	+0.94	4.62	+0.53	4.91	+0.82
19	4.22	4.94	+0.72	4.68	+0.46	4.91	+0.69
20	3.44	5.03	+1.59	4.55	+1.11	4.66	+1.22
21	4.34	5.28	+0.94	4.66	+0.32	5.13	+0.79

△ = Change from Pre-Conference Scores

KNOWLEDGE SCALE

SEMINAR I - TABLE 8

Item No.	Pre-Conference Mode	Post-Conference Mode	△	Seminar I Mode	△	Seminar II Mode	△
1	2	5	+3	4	+2	5	+3
2	1	5	+4	4	+3	5	+4
3	2	5	+3	5	+3	5	+3
4	5	6	+1	5	0	5	0
5	2	6	+4	6	+4	5	+3
6	4	5	+1	5	+1	5	+1
7	3	5	+2	5	+2	5	+2
8	3	6	+3	5	+2	5	+2
9	3	6	+3	5	+2	6	+3
10	1	5	+4	5	+4	5	+4
11	1	6	+5	5	+4	4	+3
12	3	6	+3	5	+2	5,6	
13	2	5	+3	5	+3	5	+3
14	2	5	+3	4	+2	5	+3
15	6	6	0	5	-1	5	-1
16	4	5	+1	5	+1	5	+1
17	2	5	+3	5	+3	5	+3
18	3,4,6	5	△	5	△	5	
19	5	5	0	5	0	5	0
20	2	5,6	△	5	+3	5	+3
21	5	6	+1	5	0	5	0

△ = Change from Pre-Conference Scores

KNOWLEDGE SCALE

SEMINAR I - TABLE 9

Item No.	Pre-Conference Median	Post-Conference Median	△	Seminar I Median	△	Seminar II Median	△
1	2	5	+3	4	+2	4	+2
2	1	5	+4	4	+3	4	+3
3	3	5	+2	5	+2	5	+2
4	4	5	+1	5	+1	5	+1
5	4	6	+2	5	+1	5	+1
6	4	5	+1	5	+1	5	+1
7	3	5	+2	5	+2	5	+2
8	4	5	+1	5	+1	5	+1
9	4	5	+1	5	+1	5	+1
10	2	5	+3	4	+2	5	+3
11	2	5	+3	5	+3	5	+3
12	3	5	+2	5	+2	5	+2
13	3	5	+2	5	+2	5	+2
14	2	4	+2	4	+2	5	+3
15	5	6	+1	5	0	5	0
16	4	5	+1	5	+1	5	+1
17	3	5	+2	5	+2	5	+2
18	4	5	+1	5	+1	5	+1
19	5	5	0	5	0	5	0
20	4	5	+1	5	+1	5	+1
21	5	5	0	5	0	5	0

△ = Change from Pre-Conference Scores

Those areas which showed the greatest upward range change in learning behavior according to the participants' scale were: Special learning needs of disadvanted college students; the organization and services of the Ohio Division of Vocational Education; Professional Associations in Technical Education; The role of the Ohio Board of Regents in Technical Education; and Recent developments, problems and issues in Technical Education. These areas had greater than a 2.00 change however, one must note that these original pre-test scores were low on the continuum scale, therefore the range allowed for more upward response ratings. With this in mind the following areas could be denoted a mastery acceptance level because mean scores are greater than 5.00: Individualizing Instruction; Utilization of behavioral objectives in instruction; Teaching strategies and methods in Technical Education; Characteristics of Technical Education Faculty; The role of the Ohio Board of Regents in Technical Education; Characteristics of Technical Education students; The preparation of audio-visual instruction; Recent developments, problems, and issues in Technical Education; Development of lesson plans, units and courses of instruction; Function of Student Personnel Services; Guidance and counseling role of instructors, Evaluation of Instructors by Administrators; and Personal teaching skills.

The overall evaluation of the Knowledge Scale can be seen in Tables 7, 8 , and 9. These results cover an eight month time span and show that even in some questions where there was a slight decline in response level all responses still show a positive increase from the base or post-test.

Participant Survey

The Certification and Phase II Questionnaire (see Appendix) asked 6 questions of the participants. First; "Do you feel that two-year college instructors should be required to meet State certification requirements?"

The participants responded as follows: 69% or 22 said No while 31% or 10 said certification should be a requirement. However when the 10 that answered yes to the above question were asked: "Do you feel that the requirements should be the same for high school teacher certification," all responded No, indicating that they should not be the same.

The second question asked if attendance at an institute similar to the one at Akron should be required of all new two-year college instructors. Twenty-five or 78% responded that it sould be a requirement, 7 or 22% said it should be made optional, while no one responded that is not be needed.

The third question asked the participants is they would to see the staff provide short seminars of their campus for their entire faculty. Thirty or 94% of the participants replied yes whole only 2 or 6% said no.

The next question dealt with funding. The participants were asked if they would have attended this institute if they had to pay their own way for tuition, books, dorm, etc. The results were divided in that 17 or 53% said yes they would pay their own expenses while 14 or 44% said no they would not have attended. One participant was undecided on this question. The participant responses indicate that funding could be considered a prime consideration to maximize attendance at future institutes of this type.

The fifth question asked was to determine the locations for Seminars I and II. It was the staff's intent to encourage student involvement thereby maximizing attendance at these seminars. The two areas selected most often by the participants included Columbus and Akron. These were selected for Seminars I and II.

The sixth question asked the participants for topics that they would like to be presented during Phase II. Over 30 different topics were suggested. Seven topics had a high frequency of response. Three of these were covered during Seminars I and II.

Participant Evaluation of Institute

The participants' impression of the Phase I part of the Institute was considered of great importance in the overall evaluation scheme. This institute evaluation can be seen in the appendix in its entirety. The following partial data has been extracted from the questionnaire results:

%		Participants	Question
100%	=	32	I hope it can be an annual event
97%	=	31	It provided the kinds of information that I can apply to my own situation
97%	=	31	It helped me personally
88%	=	28	I think it served its purpose
63%	=	20	It was one of the best institutes I have ever attended
50%	=	16	It was exactly what I wanted
3%	=	1	I did not take away any new ideas
3%	=	1	It did not hold my interest
0%	=	0	I was dissatisfied
0%	=	0	It was a complete waste of time

Participant Utilization of Knowledge

The Utilization Scale was used during Phase II for evaluation. This scale basically asked the same 21 questions which were previously asked in the Knowledge Scale, however the questions ask to what degree you are using these skills instead of how knowledgeable you are about these skills. Besides the actual observation of each participant during Micro-Teaching, this self-report divice was the only other means available to evaluate each participant's use of these learned skills. Additional staff and funds would have been required to supervise the participants at their home institutions. This was not included in the present model, but would be strongly

TABLE 10
A COMPARISON OF INSTITUTE PARTICIPANTS WITH NON PARTICIPANTS
Utilization Scale

Key: 3 = Used Frequently; 2 = Used Occasionally; 1 = Never Used

	Institute Participants (32)	Kury Control Group (30)
1. Information about the special learning needs of disadvanted college students.		
	(3) 12.5%	(3) 13.3%
	(2) 71.9%	(2) 40.0%
	(1) 15.6%	(1) 46.7%
2. Information about the organization and services of the Ohio Division of Vocational Education.		
	(3) 12.5%	(3) 3.3%
	(2) 37.5%	(2) 20.0%
	(1) 50.0%	(1) 76.7%
3. Information about how adults learn: theory and application.		
	(3) 56.3%	(3) 20.0%
	(2) 40.6%	(2) 46.7%
	(1) 3.1%	(1) 33.3%
4. The techniques for individualizing instruction.		
	(3) 43.8%	(3) 30.0%
	(2) 53.1%	(2) 56.7%
	(1) 3.1%	(1) 13.3%
5. The utilization of behavioral objectives in instruction.		
	(3) 75.0%	(3) 46.7%
	(2) 21.9%	(2) 30.0%
	(1) 3.1%	(1) 23.3%
6. Information about instructional systems.		
	(3) 35.5%	(3) 16.7%
	(2) 54.8%	(2) 56.7%
	(1) 9.7%	(1) 26.7%
7. Information about teaching strategies and methods in technical education.		
	(3) 59.4%	(3) 36.7%
	(2) 37.5%	(2) 36.7%
	(1) 3.1%	(1) 26.7%

8. Information about the characteristics of Technical Education students.

(3) 59.4%	(3) 36.7%
(2) 34.4%	(2) 43.3%
(1) 6.3%	(1) 20.0%

9. Information about the characteristics of Technical Education faculties.

(3) 31.3%	(3) 6.7%
(2) 50.0%	(2) 43.3%
(1) 8.8%	(1) 50.0%

10. Information about professional associations in Technical Education.

(3) 12.9%	(3) 6.7%
(2) 61.3%	(2) 40.0%
(1) 25.8%	(1) 53.3%

11. Information about the role of the Ohio Board of Regents in Technical Education.

(3) 21.9%	(3) 10.0%
(2) 34.4%	(2) 33.3%
(1) 43.8%	(1) 56.7%

12. Techniques for preparing audio-visual instruction.

(3) 50.0%	(3) 33.3%
(2) 43.8%	(2) 53.3%
(1) 6.3%	(1) 13.3%

13. Information about recent developments, problems, and issues in Technical Education.

(3) 40.6%	(3) 17.2%
(2) 56.3%	(2) 65.5%
(1) 3.1%	(1) 17.2%

14. Information about the legal responsibility of instructors.

(3) 12.5%	(3) 6.7%
(2) 40.6%	(2) 40.0%
(1) 46.9%	(1) 53.5%

15. Techniques for the development of lesson plans, units, and courses of instruction.

(3) 71.9%	(3) 56.7%
(2) 25.0%	(2) 23.3%
(1) 3.1%	(1) 20.0%

16. Information about the development of technical education curriculums.

(3) 37.5%	(3) 23.3%
(2) 53.1%	(2) 60.0%
(1) 9.4%	(1) 6.7%

17. Information about the function of student personnel services.

(3) 18.8%	(3) 26.7%
(2) 71.9%	(2) 63.3%
(1) 9.4%	(1) 10.0%

18. Information about the guidance and counseling role of instructors.

(3) 54.8%	(3) 44.8%
(2) 45.2%	(2) 41.4%
(1) 0%	(1) 13.8%

19. Techniques for testing, evaluation, and grading.

(3) 62.5%	(3) 55.2%
(2) 37.5%	(2) 20.7%
(1) 0%	(1) 24.1%

20. Information about the process of evaluation of instructors by administrators.

(3) 21.9%	(3) 16.7%
(2) 50.0%	(2) 36.7%
(1) 28.1%	(1) 56.7%

21. Information about ways of improving personal teaching skills.

(3) 75.0%	(3) 53.3%
(2) 18.8%	(2) 40.0%
(1) 6.3%	(1) 6.7%

recommended for future programs. The results of the Utilization Scale can be found in the appendix.

The Control Study was conducted by Richard Kury during Spring 1973 as a base for comparison of Two-Year College faculty that were not exposed to the Technical Education Workshop. Forty-five Utilization Scale Questionnaires were distributed to full-time technical college faculty at the University of Akron who did not participate in the institute. Thirty questionnaires were returned for a 66 2/3% response. Specialization areas represented in the sample were Business (15), Engineering (6), Public Service (3), and Technically related (6). Table 10 compares institute participants with that of those in the Kury Control Group.

While the staff realizes that the research design in comparing groups of this nature may be limited and incomplete it does however present data for a comparison base. With these limits in mind one can make the general assumption that instructors who participated in the Technical Education Institute perceive to use the skills and information identified by the Institute more frequently than those technical instructors that have not attended the Institute.

Two instruments were used for final evaluation. First was an evaluation by the participants' immediate supervisors at their home institutions. (data is presented at the end of this section). Second was the overall Phase I and II final evaluation instrument completed by the participants. Each participant evaluated elements of the Technical Education Institute in terms of personal value, as summarized below (first figure = N, second figure = %):

1. Length of summer training period Phase I

   Too Short = 6 = 19.35%
   Just Right = 23 = 74.19%
   Too Long = 2 = 6.45%

   Comments: Most participants commented that the three week period was just about right, however, some felt it was too short. Only 2 respondents felt the 3 week period was too long.

2. Number of topics presented in Phase I

   Too Few = 0 = -
   Just Right = 12 = 37.50%
   Too Many = 20 = 62.50%

   Comments: The majority of respondents felt that more discussion could have taken place if topics would have been reduced thereby allowing for more in-depth study.

3. Number of speakers utilized in Phase I

   Too Few = 1 = 3.23%
   Just Right = 14 = 45.16%
   Too Many = 16 = 51.61%

   Comments: This question had a carry over affect from question 2. Participants would have liked to have spent more time with certain speakers for in-depth discussion.

4. Number of weekend seminars in Phase II

   Too Few = 8 = 26.67%
   Just Right = 20 = 66.67%
   Foo Many = 2 = 6.67%

   Comments: Those that attended the seminars responded to Just Right or Too Few, while the two that did not attend either seminar responded Too Many. Those that responded Too Few were primarily those respondents that felt Phase I should have been lengthened to cover the material in more depth.

5. Number of Micro-teaching sessions

   Too Few = 14 = 45.16%
   Just Right = 16 = 51.61%
   Too Many = 1 = 3.23%

   Comments: While the majority of participants were satisfied wit' micro-teaching almost half would have liked to have had more experience in the laboratory.

6. Value of micro-teaching experience

Much Value = 23 = 76.67%
Some Value = 6 = 20.00%
Little Value = 1 = 3.33%
No Value = 0 = -

Comments: These comments reinforced question 5. Typical comments were "one of the most productive areas" and "a great help in improving my personal teaching techniques." Two participants commented that as a result of this experience they are utilizing the micro-teaching equipment at their home institution, which was being kept in storage because no one knew what it was used for.

7. Living on Campus

Much Value = 12 = 40.00%
Some Value = 1 = 3.33%
Little Value = 2 = 6.67%
No Value = 0 = -
Did not attend = 15 = 50.00%

Comments: Of the 15 reporting a degree of value, the majority perceived this experience as of much value (80%) through the interaction with instructors from other colleges. The 2 participants that marked little value were unable to become active with these activities as they were working a full-time job during the institute.

8. Value of eating meals together

Much Value = 22 = 68.75%
Some Value = 7 = 21.88%
Little Value = 3 = 9.38%
No Value = 0 = -

Comments: Most participants said that meal discussions helped reinforce ideas and concepts previously discussed. It also afforded participants an opportunity to talk with the speakers and staff members.

9. Value of socializing with fellow instructors from other institutions

Much Value = 27 = 87.10%
Some Value = 3 = 9.68%
Little Value = 0 = -
No Value = 0 = -
Does Not Apply = 1 = 3.23%

Comments: Interaction with other instructors from other institutions was the most predominant response for this question.

10. Value of University of Akron facilities

Much Value = 20 = 64.52%
Some Value = 9 = 29.03%
Little Value = 2 = 6.45%
No Value = 0 = -

11. Value of Institute staff

Much Value = 29 = 90.63%
Some Value = 3 = 9.38%
Little Valu[illegible] 0 = -
No Value [illegible] = -

Comments: Par[illegible]pants were quite pleased and satisfied with the help, cooperation and counseling received from the staff. Many comments suggested that the staff displayed a high degree of competency in all areas discussed and would have preferred their expertise as speakers on many areas.

12. Value of weekend seminars Phase II

Much Value = 18 = 56.25%
Some Value = 11 = 34.38%
Little Value = 1 = 3.13%
No Value = 0 = -
Did Not Attend = 2 = 6.25%

Comments: Most participants regarded topics highly relevent and provided a form of reinforcement of Phase I. Some desired a continuation of the seminars. Others felt that the seminars should be carried over to Sunday. All seminars were concluded on Saturday afternoons.

13. Value of topics and instruction presented during Phase I (summer)

Much Value = 21 = 65.63%
Some Value = 11 = 34.38%
Little Value = 0 = -
No Value = 0 = -

Comments: Most comments stated that a broad, general background was given of all topics. Once again many participants requested further in-depth study of a few areas.

14. Value of topics and instruction presented during Phase II (weekend seminars)

Much Value = 13 = 40.63%
Some Value = 13 = 40.63%
Little Value = 4 = 12.50%
No Value = 0 = -
Did not Attend = 2 = 6.25%

15. Quality of speakers and guest lectures

Much Value	= 21 =	65.63%
Some Value	= 11 =	34.38%
Little Value	= 0 =	-
No Value	= 0 =	-

16. Value of total Institute

Much Value	= 29 =	90.63%
Some Value	= 3 =	9.38%
Little Value	= 0 =	-
No Value	= 0 =	-

Comments: Most comments dealt with helping the instructor to increase effectiveness in the classroom.

17. Value of your "certificate of completion"

Much Value	= 13 =	40.63%
Some Value	= 13 =	40.63%
Little Value	= 3 =	9.38%
No Value	= 1 =	3.13%
Does Not Apply	= 2 =	6.25%

Comments: Many instructors were recognized at faculty meetings with the presentation of their completion certificates. Others received letters of recognition from their respective dean or president. However one participant received a "so what" response from his administrator while two have not received their certificates to date.

18. Value of receiving academic credit (6 qtr. hrs.) for enrolling in the Institute

Much Value	= 24 =	75.00%
Some Value	= 5 =	15.63%
Little Value	= 1 =	3.13%
No Value	= 0 =	-
Did not Apply	= 2 =	6.25%

Comments: Academic credit was reported to be of value to over 90%.

<u>The following services were proposed for the Institute but WERE NOT provided</u>:

19. Institute only for members of one institution or college at a time

Much Value	= 2 =	6.45%
Some Value	= 5 =	16.13%
Little Value	= 12 =	38.71%
No Value	= 12 =	38.71%

20. Institute for only one technical area at a time (business, engineering etc.)

Much Value	=	6	= 18.75%
Some Value	=	10	= 31.25%
Little Value	=	9	= 28.13%
No Value	=	7	= 21.88%

21. Institute for only one geographic area at a time

Much Value	=	0	= -
Some Value	=	6	= 19.35%
Little Value	=	14	= 45.16%
No Value	=	11	= 35.48%

22. Consultant services provided by the University of Akron faculty throughout the year (phone and mail only)

Much Value	=	10	= 31.25%
Some Value	=	17	= 53.13%
Little Value	=	3	= 9.38%
No Value	=	1	= 3.13%
Did not Apply	=	1	= 3.13%

23. A visiting professor from the University of Akron to work with you at your college

Much Value	=	10	= 31.25%
Some Value	=	17	= 53.13%
Little Value	=	3	= 9.38%
No Value	=	1	= 3.13%
Did not Apply	=	1	= 3.13%

24. One or two day seminars at your college

Much Value	=	13	= 40.63%
Some Value	=	12	= 37.50%
Little Value	=	4	= 12.50%
No Value	=	1	= 3.13%
Did not Apply	=	2	= 6.25%

25. An advanced Institute for the participants of this Institute

Much Value	=	21	= 67.74%
Some Value	=	8	= 25.81%
Little Value	=	1	= 3.23%
No Value	=	0	= -
Did not Apply	=	1	= 3.23%

General value to participants

26. Value to you in terms of personal satisfaction

Much Value	= 29	= 90.63%
Some Value	= 3	= 9.38%
Little Value	= 0	= -
No Value	= 0	= -

27. Value to you in terms of increased knowledge and skills

Much Value	= 24	= 77.42%
Some Value	= 7	= 22.58%
Little Value	= 0	= -
No Value	= 0	= -

28. Value to you in terms of personal recognition by faculty or administrators

Much Value	= 8	= 25.81%
Some Value	= 13	= 41.94%
Little Value	= 8	= 25.81%
No Value	= 2	= 6.45%

29. Value to you in terms of tangible recognition such as salary increase, tenure, promotion

Much Value	= 5	= 17.86%
Some Value	= 4	= 14.29%
Little Value	= 5	= 17.86%
No Value	= 14	= 50.00%

The last instrument for evaluation was mailed in letter form to each participant's immediate supervisor as noted on the personal data sheet. This questionnaire was mailed after the completion of Seminar II so that the supervisors would have at least three full quarters to evaluate the instructor's performance. A copy of the questionnaire may be found in the appendix. The results of the Supervisor Evaluation questionnaire is summarized below.

A. In terms of the purpose of this Institute, I feel that the above instructor:

1. Benefited greatly by his participation	71.43%
2. Received some benefit by his participation	28.57%
3. Did not receive any benefit by his participation	--

B. Compared to other instructors who did not attend the Institute, the above instructor would be rated as:

1.	Performance better than most instructors	58.82%*
2.	Performance equal to most instructors	41.18%*
3.	Performance below most instructors	- *
4.	No chance to observe	26.09%**

* Calculated as percent of only those observed
** Calculated as per cent of total returns, N = 23

The data indicates that all reporting supervisors thought that the Institute was of value to the participants and none of the participants rated below average in performance (59% were rated as better than most instructors).

The evaluation of this data indicates that instructors exposed to this specific Technical Teacher Education Training Institute model acquired an increased level of knowledge of teaching skills in Technical Education. The evaluation also suggests that instructors having these skills will be more likely to use these skills in the classroom than instructors who have not had specific teacher training. The evaluation feedback positively correlates with the stated objectives of this proposal.

SUMMARY AND RECOMMENDATIONS

The literature regarding the preparation of instructors for post-secondary technical education is almost non-existant.

Instructors at this level typically are employed directly from the world-of-work and in most cases have little, if any, professional preparation in teaching. A major exception to this conclusion seems to be the instructor of technically related subjects who often "moves up" to post-secondary instruction from the ranks of secondary education.

If one can accept that "teachers are made and not born" then one can probably also accept that having technical competence and experience in an occupational field does not necessarily make a technician a good teacher.

It is possible to hypothesize several variations of models for the preparation of technical instructors. The ongoing Bachelor of Science and Master of Science programs in Technical Education at the University of Akron are but one example of an existing model. Unfortunately, four or five years of full-time education is not necessarily the most practical model for meet the immediate faculty and staff needs of Ohio's 48 two-year campuses which offer programs of technical education. Last year alone, technical college enrollments grew approximately 25 percent. The demand for an increasing number of well prepared instructors is obvious.

In an attempt to meet this critical need the University of Akron developed a short-term model consisting of a three week intensive pre-service institute followed up with two weekend in-service seminars for new instructors employed in post-secondary technical education.

The evaluation of the model by the participants, their supervisors, an outside consultant, and the Institute staff indicates that the model developed as part of this project, (with slight modification) if expanded and repeated, could go a long way toward meeting the immediate demand for qualified instructors in Ohio.

The following topics of instruction were supplemented with laboratory experiences in the preparation of instructional materials and practice in micro-teaching skills:

1. The learning needs of the disadvantaged student
2. An introduction to vocational and technical needs
3. Adult learning applied to the two-year college
4. Individualizing instruction
5. Instructional systems
6. Teaching by using behavioral bjectives
7. Teaching strategies and methods
8. Characteristics of the middle level working technician
9. Characteristics of the two-year college
10. Characteristics of the two-year college faculty
11. Professional education associations
12. Micro-teaching
13. Visual instruction
14. The Ohio Association of Two-Year Colleges
15. Two-year colleges in Ohio
16. Problems, issues, and recent developments in technical education
17. Legal responsibilities of instructors and professional ethics on campus
18. Planning for instruction and curriculum development
19. Student personnel services
20. The instructor as a counselor
21. Testing, evaluation and grading
22. Administrators' view of faculty and their evaluation of faculty.

Considerable advance planning is critical to the success of the model. Since new instructors are frequently not employed until late in the summer (or the week that classes begin) it would seem that several different models are really needed: 1) a pre-service and in-service model for new instructors hired by early summer (similar to the present model); 2) an in-service model developed for new instructors employed too late to

attend the pre-service program; 3) an in-service model for present instructors who have not been prepared in professional education; 4) a long-term model designed to prepare instructors through a regular four-year college teacher education program designed for this purpose; 5) an advanced undergraduate or graduate model to up-date experienced instructors.

As judged by the supervisors of the participants of the present model, the model was of benefit to all participants. All instructors were rated as "equal to" or "better than" most instructors (59% "better").

Most participants would recommend a three week session for Phase I of the model and feel that the number of topics and speakers should be limited to provide the opportunity for extended participant interaction. Micro-teaching was perceived to be of much value to the participants. The model was perceived as having value by all participants (91% "much value").

When asked to consider variations in the model, the participants favored the present mix of institutions, technology fields, and geographic areas.

Future models should consider the recommendations of the participants that:

1. The institute should provide consultant services throughout the year by phone and mail (84%).
2. The institute should provide a visiting professor in the field (84%).
3. The institute should provide short seminars at the participant's college (78%).
4. An advanced institute should be planned for the present participants (94%).

Many participants felt that administrators of post-secondary technical education also would greatly benefit through participation in a variation of the model (this suggestion was volunteered by the participants).

While the present model seems to be more than adequate for the purpose for which it was designed, the staff recommends additional experimentation and evaluation incorporating the above suggestions. The staff also recommends that serious consideration be given to the long-range development and evaluation of a performance based instructional model designed specifically for post-secondary technical education instruction.

APPENDIX A

REPORT OF A RESEARCH AND EVALUATION CONSULTANT

Thomas H. Maxwell, Ed.D.
College of Education
The University of Akron

Introduction

During the Spring of 1973, I was asked by the Director and Assistant Director of The University of Akron's Technical Education Teacher Training Institute to assist them in the evaluation of their institute. I was pleased to find that considerable evaluation had already taken place before my involvement in the project. My task became not the typical "help us figure out what we've done" but to evaluate their ongoing evaluation in order to provide an objective viewpoint.

This report consists of my own personal appraisal of the impact of this Institute. As a professional involved in the content and application of measurement and evaluation principles, my reaction to this Institute evaluation encompasses concerns for research design, validity of evaluation techniques and practical importance of the qestions being asked.

Let me begin by focusing by on the central question being investigated: Was the Institute a success? In order to answer this question, it is necessary to reviev the principal objective of the institute which was to develop a model for Technical Education Teacher Training.

In my opinion the evaluation of this model consists primarily of assessing the affective behavior change of the participants at various points in their involvement in the Institute. Most of the evaluation consists of appraising participants value of the knowledge reported and their incorporation of this knowledge into their instructional actions. Essentially, this involves determining the degree to which the knowledge presented in the Institute has been received, responded to, valued, organized into value systems and characterized bv the participants. The above analysis is taken from the affective domain in Bloom's Taxonomy of Educational Objectives.

Methodology

In order to assess the affective behavior change of participants, two scales were developed, the Knowledge and Utilization Scales. These scales are both self-report instruments eliciting participant ratings of the different content areas presented in the workshop. Although both these scales have the limitations of self-report techniques, their value is enhanced when administered to professional adults in a non-threatening situation as appears to be the case here where anonymity was insured for all respondents.

The Knowledge Scale was administered before and at several times after the Institute. It measures, I believe, how respondents value each content item on the scale. Its use presumes that respondents have received the particular information listed and have actively responded to that information. It is my understanding that each participant performed required tasks during the Institute which required the active use of the information provided.

The difference scores in the body of the report show increased valuing of the material immediately after the Institute and at later successive points.

The real impact of the Institute does not rest with whether participants value this knowledge more as a result of attending, however. As a method of training teachers, the real question is: Did the Institute effect participants instructional behavior? The Utilization Scale was used to answer this question. The scale measures the degree to which participants actually incorporated the knowledge and skills acquired into their teaching behavior. Another way of saying the above is that the Utilization Scale measures the degree of internalization of the valued knowledge; the highest level in Krathwohl's Affective Domain.

The degree of reported usage is presented in the body of the report. In addition, a comparison between the Institute participants and a similar group of technical educators not participating in the Institute was undertaken to provide an added perspective to the usage question.

The other major component in the evaluation consisted of questionnaires measuring participants assessments of the quality of each Institute instructor and the worth of the Institute in its entirety. In addition, the supervisors of participants provided a judgement of the worth of the Institute in reference to participants teaching performance. These results are easily interpreted as presented in the report.

Results and Conclusions

In the body of the report the data presented indicate that participants gained, valued, and used information and techniques for the improvement of their instruction. The major thrust in the evaluation of the Institute was in assessing the degree of internalization of the content presented. The supervisors reports and comparison with non-participants in utilization adds credence to these findings.

Now the question arises: How sure can we be about the validity of this evaluation? In a scientific sense, its apparent that there was no controlled experimentation to justify complete certainity in the reported results. However, time, money and practicality all dictate a less precise method of evaluation. Then how do we know that participants profited at all? Observation of their behavior leads one to believe this.

Couldn't one feel more certain about the impact of the Institute if we had some cognitive achievement scores to look at? I couldn't. To me, providing people knowledge and not bothering to find out whether or how they use that knowledge is completely unjustified when assessing the impact of an educational experience.

So, I believe that this Institute can serve as a model for training technical educators. This is not to say that we have the definitive perfected model; but, rather a working model that has proven reasonably effective and can certainly be improved.

Recommendations

My recommendations are concerned with the evaluation aspect of the model, not the content or method of instruction used. In order to increase the probability of correctly interpreting the Institute's impact, vast sums of money and time could be invested. Below are several suggestions that vary from modest to moderate investment of resources.

First, pre- and post-institute achievement tests could be administered for evaluation as well as diagnostic purposes. The gain scores and the post test scores could be correlated with the Affective measures already used to discover what relationships exists. The direction and degree of relationship might subtantiate the affective analysis.

Second, a supervisor from the Institute observing micro-teaching and actual job performance could provide additional data to further substantiate the self-reported results.

Finally, the careful selection of a control group could provide even further evidence to strengthen the evaluation.

It should be pointed out, however, that these recommendations could apply to any teacher education program, but rarely are.

APPENDIX B

Certificate of Completion	163
Participants	164
Advisory Committee	167
Technical Area of Specialization	168
Participant Evaluation	169
Post-Conference Survey	170
Utilization - Experimental	171
Utilization - Control	173
Publications Distributed to Participants	175

The University of Akron

College of Education

This is to certify that

_____

has satisfactorily completed the

TECHNICAL EDUCATION TEACHER TRAINING INSTITUTE

conducted at The University of Akron

Akron, Ohio

August 7 to August 25, 1972

Dean, College of Education

Director, EPDA Project 72042

Technical Education Institute Participants

Bob R. Askew 702 East Nimisila Road Akron, Ohio 44319	U. Akron C&T Criminal Justice
Martha Jane Beale 1713-24th Street N.W. Canton, Ohio 44709	Stark Tech. College Business Tech. Sec. Sci.
Robert Carleton Box 204 St. Clairsville, Ohio 43950	Belmont Tech. College Technical Instruction
James Christian Box 673 Lancaster, Ohio 43130	Columbus Tech. Institute Graphic Communications
Paul Dunham 5754 Caranor Drive Kent, Ohio 44240	U. Akron C&T Industrial Tech.
Richard H. Emmons 313 N. Donner Avenue North Canton, Ohio 44720	Kent-Salem Technical-Related Physics
Michael Lee Gampp Route 2, Box 223 Sciotoville, Ohio 45662	Scioto Tech. College Business Tech.
Hadden Paul Garvin, Jr. 47 Walnut Avenue Wheeling, West Virginia 26003	Belmont Tech. College Business Tech. Retail Mgmt.
William C. Hammen 2404 Saga Circle N.E. East Canton, Ohio 44730	Stark Tech. College Mechanical Tech.
Jack Huggins 3332 Elmwood Street Cuyahoga Falls, Ohio 44221	U. Akron C&T Business Tech. Data Proc.
James T. Kelsey, Jr. Route 3, Box 328 Logan, Ohio 43138	Hocking Tech. College Business Tech. Retail Mgmt.
Robert Kiepura 300 Chagrin Blvd. Chagrin Falls, Ohio 44022	Cuyahoga Comm. College Mechanical Tech.
Carol J. Leap 6400 Center Street Apt. 106 C Mentor, Ohio 44060	Lakeland Comm. College Business Tech. Sec. Sci.

George Gary Lucas 5772 Cedarmont Avenue Navarre, Ohio 44662	Stark Tech. College Technical-Related Science
Leroy Miller 719 Meadow Drive New Martinsville, W. Va. 26155	Belmont Tech. College Mechanical Tech.
Glenn Milner 203 Marie Place Perrysburg, Ohio 43551	Owens Tech. College Business Tech.
Elizabeth Misko 2637 Woodward Road Cuyahoga Falls, Ohio 44221	Akron Gen. Medical Center School of Nursing Allied Health
Cecilia L. Mower 131 Elm Street Walbridge, Ohio 43465	Univ. Toledo C&T Business Tech. Data Proc.
Joseph C. Mullin 3516 Adaline Drive Stow, Ohio 44224	U. Akron C&T Criminal Justice
Darlice Stuart Ogletree 3721 East 153 Street Cleveland, Ohio 44120	Cuyahoga Comm. College Law Enforcement
Michael T. Oravecz 4120 Sunrise Blvd. Mogadore, Ohio 44260	U. Akron C&T Business Tech.
John Palmer 527 Bath Hills Blvd. Akron, Ohio 44313	Cuyahoga Comm. College Business Tech.
Love Parker 3819 Brainard Road Woodmere, Ohio 44122	Cuyahoga Comm. College Law Enforcement
Alfred Penko 10241 Ridge Road North Royalton, Ohio 44133	Cuyahoga Comm. College Mech. Engr. Tech.
Maurice H. Pernod 40 Garfield Avenue London, Ohio 43140	Columbus Tech. Institute Graphic Communications
L. Dan Richards 216 North Columbus Street Galion, Ohio 44833	North Central Tech. College Technical-Related Communication
Drusanne Shaulis 840 Francis Avenue Columbus, Ohio 43209	Scioto Tech. College Allied Health Medical Tech.

William Shunkwiler 309 Butler Road N.E. Warren, Ohio 44483	Kent-Trumbull Program Development
Dennis L. Smith 4103 Allenwood S.E. Warren, Ohio 44483	Kent-Trumbull Program Development
Arthur Taliaferro 19313 Lanbury Avenue Warrensville Heights, Ohio 44122	Cuyahoga Comm. College Law Enforcement
Ralph Ulman, Jr. R. D. 4, Box 139 Wheeling, West Virginia 26003	Belmont Tech. College Technical-Related Communication
Anne H. West 2480 State Road Apt. 3 Cuyahoga Falls, Ohio 44223	U. Akron C&T Business Tech. Sec. Sci.

ADVISORY COMMITTEE

Name		Institute
T & I Education	Henry Fallerius, Director Ted Stiner, Dean of Instructional Services	North Central Ohio Tech. Inst. Lorain County Community College
Home Economics Education	Carol Kizer, Chairman of Food Technology	Columbus Technical Institute
	Jane White	Muskingum Technical Institute
Distributive Education	Joe Maneri, Chairman of Business Division	Columbus Technical Institute
	Leon Linton	Cincinnati Technical Institute
Business and Office Educ.	Gene King, Supervisor of Business and Office Education	Muskingum Technical Institute
	Clifford House, President	Cincinnati Technical Institute
T & I Education	Mr. Harry Davis Assistant Director	Division of Vocational Education 65 South Front Street
Business and Office Educ.	Mr. Robert Balthaser Assistant Director	Division of Vocational Education 65 South Front Street
Agriculture Education	Mr. James E. Dougan Assistant Director	Division of Vocational Education 65 South Front Street
Home Economics Education	Mrs. Sonia Cole Assistant Director	Division of Vocational Education 65 South Front Street
Distributive Education	Dr. Bernard Nye Assistant Director	Division of Vocational Education 34 North High Street
	Dr. Jerry J. Halterman, Director	Agricultural Technical Institute The Ohio State University
	Mr. Charles Woolf, Chairman Department of Agricultural Educ.	Muskingum Technical Institute
	Dr. Dan Garrison, Chairman Department of Agricultural Educ.	Clark County Technical College
	Dr. William J. Frye Assistant Professor of Educ.	Akron University Akron, Ohio
	Dr. Michael N. Sugarman Assistant Professor of Educ.	Akron University Akron, Ohio

TECHNICAL EDUCATION INSTITUTE

PARTICIPANT'S AREA OF SPECIALIZATION

	PARTICIPANTS	PERCENTAGE
I. Administration	3	9.9%
II. Teaching Area		
A. Agriculture	0	0%
B. Allied Health	2	6.3%
C. Business & Distributive Education	9	28.1%
D. Engineering & Industrial	7	21.8%
E. Home Economics	0	0%
F. Public Service	5	15.6%
G. Technically Related	6	18.7%

Technical Education Participant Evaluation

Survey: II

Indicate your impression of the entire Institute by checking the statements that apply.

63% = 20	a.	It was one of the best Institutes I have ever attended.
50% = 16	b.	It was exactly what I wanted.
100% = 32	c.	I hope it can be an annual event.
97% = 31	d.	It provided the kinds of information that I can apply to my own situation.
97% = 31	e.	It helped me personally.
88% = 28	f.	I think it served its purpose.
28% = 9	g.	It had some merits.
9% = 3	h.	It was neither very good or very bad.
3% = 1	i.	It was typical of many Institutes I have attended.
13% = 4	j.	I was mildly disappointed.
9% = 3	k.	It was not exactly what I wanted.
16% = 5	l.	It was too general in nature.
3% = 1	m.	I did not take away any new ideas.
3% = 1	n.	It didn't hold my interest.
0% = 0	o.	I was dissatisfied.
0% = 0	p.	It was a complete waste of time.

TECHNICAL EDUCATION INSTITUTE POST CONFERENCE SURVEY

1. A. Do you feel that two-year college instructors should be required to meet State certification requirements?

   Yes: 10 = 31%
   No: 22 = 69%

   B. If yes, do you feel that the requirements should be the same for high school teacher certification?

   Yes: 0
   No: 10 = 100%

2. Do you feel that attendance at an institute similar to the one at Akron should be required of all new two-year college instructors?

   Required: 25 = 78%
   Optional: 7 = 22%
   Not needed: 0 = 0%

3. Would you like to see us provide short seminars on your campus for your entire faculty?

   Yes: 30 = 94%
   No: 2 = 6%

4. Would you have attended this Institute if you had to pay your own way (tuition, books, dorm, etc.)?

   Yes: 17 = 53%
   No: 14 = 44%
   Undecided: 1 = 3%

5. Preference of location of Seminars I & II.

   Akron = 11 = 34%
   Cleveland = 1 = 3%
   Columbus = 15 = 47%
   Other = 5 = 16%

6. Topics that you would like presented during Phase II Seminars.

TECHNICAL EDUCATION INSTITUTE WORKSHOP: EXPERIMENTAL GROUP

NAME Experimental Group (32)

UTILIZATION SCALE

Listed below are a number of statements. Each statement relates to information or a skill considered relevant to post-secondary occupational education. To what degree would you estimate that you have used the information and skills during this academic year? Place an X in the category on each scale that best represents your estimate. Note the marked example.

Used Frequently_____ Used Occasionally X Never Used _____

1. Information about the special learning needs of disadvantaged college students.
   Used Frequently 12.5% (4) Used Occasionally 71.9% (23) Never Used 15.6% (5)
2. Information about the organization and services of the Ohio Division of Vocational Education.
   Used Frequently 12.5% (4) Used Ocassionally 37.5% (12) Never Used 50.0% (16)
3. Information about how adults learn: theory and application
   Used Frequently 56.3% (18) Used Occasionally 40.6% (13) Never Used 3.1% (1)
4. The techniques for individualizing instruction
   Used Frequently 43.8% (14) Used Occasionally 53.1% (17) Never Used 3.1% (1)
5. The utilization of behavioral objectives in instruction
   Used Frequently 75.0% (24) Used Occasionally 21.9% (7) Never Used 3.1% (1)
6. Information about instructional systems
   Used Frequently 35.5% (11) Used Occasionally 54.8% (17) Never Used 9.7% (3)
7. Information about teaching strategies and methods in technical education
   Used Frequently 59.4% (19) Used Occasionaly 37.5% (12) Never Used 3.1% (1)
8. Information about the characteristics of Technical Education students
   Used Frequently 59.4% (19) Used Occasionally 34.4% (11) Never Used 6.3% (2)
9. Information about the characteristics of Technical Education faculties
   Used Frequently 31.3% (10) Used Occasionally 50.0% (16) Never Used 18.8% (6)
10. Information about professional associations in Technical Education
    Used Frequently 12.9% (4) Used Occasionally 61.3% (19) Never Used 25.8% (8)
11. Information about the role of the Ohio Board of Regents in Technical Education
    Used Frequently 21.9% (7) Used Occasionally 34.4% (11) Never Used 43.8% (14)
12. Techniques for preparing audio-visual instruction
    Used Frequently 50.0% (16) Used Occasionally 43.8% (14) Never Used 6.3% (2)

13. Information about recent developments, problems, and issues in Technical Education
Used Frequenlty 40.6% (13) Used Occasionally 56.3% (18) Never Used 3.1% (1)

14. Information about the legal responsibility of instructors
Used Frequently 12.5% (4) Used Occasionally 40.6% (13) Never Used 46.9% (15)

15. Techniques for the development of lesson plans, units, and courses of instruction
Used Frequently 71.9% (23) Used Occasionally 25.0% (8) Never Used 3.1% (1)

16. Information about the development of technical education curriculums
Used Frequently 37.5% (12) Used Occasionally 53.1% (17) Never Used 9.4% (3)

17. Information about the function of student personnel services
Used Frequently 18.8% (6) Used Occasionally 71.9% (23) Never Used 9.4% (3)

18. Information about the guidance and counseling role of instructors
Used Frequently 54.8% (17) Used Occasionally 45.2% (14) Never Used 0% (0)

19. Techniques for testing, evaluation, and grading
Used Frequently 62.5% (20) Used Occasionally 37.5% (12) Never Used 0% (0)

20. Information about the process of evaluation of instructors by administrators
Used Frequently 21.9% (7) Used Occasionally 50.0% (16) Never Used 28.1% (9)

21. Information about ways of improving personal teaching skills
Used Frequently 75.0% (24) Used Occasionally 18.8% (6) Never Used 6.3% (2)

UNIVERSITY OF AKRON FULL-TIME FACULTY - COMMUNITY & TECHNICAL COLLEGE

Business: 15 (50%)
Engineering: 6 (20%)
Public Service: 3 (10%)
Tec. Related: 6 (20%)

NAME Control Group (30)

UTILIZATION SCALE

Listed below are a number of statements. Each statement relates to information or a skill considered relevant to post-secondary occupational education. To what degree would you estimate that you have used the information and skills during this academic year? Place an X in the category on each scale that best represents your estimate. Note the marked example.

Used Frequently_____ Used Occasionally X Never Used _____

1. Information about the special learning needs of disadvantaged college students.
   Used Frequently 13.3% (4) Used Occasionally 40.0% (12) Never Used 46.7% (14)
2. Information about the organization and services of the Ohio Division of Vocational Education.
   Used Frequently 3.3% (1) Used Occasionally 20.0% (6) Never Used 76.7% (23)
3. Information about how adults learn: theory and application
   Used Frequently 20.0% (6) Used Occasionally 46.7% (14) Never Used 33.3% (10)
4. The techniques for individualizing instruction
   Used Frequently 30.0% (9) Used Occasionally 56.7% (17) Never Used 13.3% (4)
5. The utilization of behavioral objectives in instruction
   Used Frequently 46.7% (14) Used Occasionally 30.0% (9) Never Used 23.3% (7)
6. Information about instructional systems
   Used Frequently 16.7% (5) Used Occasionally 56.7% (17) Never Used 26.7% (8)
7. Information about teaching strategies and methods in technical education
   Used Frequently 36.7% (11) Used Occasionally 36.7% (11) Never Used 26.7% (8)
8. Information about the characteristics of Technical Education students
   Used Frequently 36.7% (11) Used Occasionally 43.3% (13) Never Used 20.0% (6)
9. Information about the characteristics of Technical Education faculties
   Used Frequently 6.7% (2) Used Occasionally 43.3% (13) Never Used 50.0% (15)
10. Information about professional associations in Technical Education
    Used Frequently 6.7% (2) Used Occasionally 40.0% (12) Never Used 53.3% (16)
11. Information about the role of the Ohio Board of Regents in Technical Education
    Used Frequently 10.0% (3) Used Occasionally 33.3% (10) Never Used 56.7% (17)
12. Techniques for preparing audio-visual instruction
    Used Frequently 33.3% (10) Used Occasionally 53.3% (16) Never Used 13.3% (4)

13. Information about recent developments, problems, and issues in Technical Education
Used Frequenlty 17.2% (5) Used Occasionally 65.5% (19) Never Used 17.2% (5)

14. Information about the legal responsibility of instructors
Used Frequently 6.7% (2) Used Occasionally 40.0% (12) Never Used 53.5% (16)

15. Techniques for the development of lesson plans, units, and courses of instruction
Used Frequently 56.7% (17) Used Occasionally 23.3% (7) Never Used 20.0% (6)

16. Information about the development of technical education curriculums
Used Frequently 23.3% (7) Used Occasionally 60.0% (18) Never Used 16.7% (5)

17. Information about the function of student personnel services
Used Frequently 26.7% (8) Used Occasionally 63.3% (19) Never Used 10.0% (3)

18. Information about the guidance and counseling role of instructors
Used Frequently 44.8% (13) Used Occasionally 41.4% (12) Never Used 13.8% (4)

19. Techniques for testing, evaluation, and grading
Used Frequently 55.2% (16) Used Occasionally 20.7% (6) Never Used 24.1% (7)

20. Information about the process of evaluation of instructors by administrators
Used Frequently 16.7% (5) Used Occasionally 36.7% (11) Never Used 46.7% (14)

21. Information about ways of improving personal teaching skills
Used Frequently 53.3% (16) Used Occasionally 40.0% (12) Never Used 6.7% (2)

PUBLICATIONS DISTRIBUTED TO THE PARTICIPANTS

California, University of, A Guide for the Development of Curriculum in Vocational and Technical Education, Los Angeles: University of California, 1969.

Educational Testing Service, "Tests and Measurements Kit," Princeton: Educational Testing Service.

Gronlund, N.W., Stating Behavioral Objectives for Classroom Instruction, New York: MacMillan Co., 1970.

Mager, R.F., Preparing Instructional Objectives, Palo Alto: Fearon Publishers, 1962.

Mager, R.F. and Beach, K.M., Developing Vocational Instruction, 1967.

APPENDIX C

Data Sheet	177
Daily Evaluation Summary	178
Daily Turn In Sheet	179
Knowledge Scale	180
Phase II Questionnaire	182
Institute Evaluation	183
Utilization Scale	184
Final Evaluation	186
Supervisor Evaluation	191

DATA SHEET

Mr.
Mrs.
Miss
Name_____ _____ _____Soc. Sec._____
Print last first initial

Home Address: _____ _____ _____

City _____ State _____Zip _____

Phone: Area Code_____ Number_____

Employer: _____ _____

Address _____

City_____State _____Zip_____

Phone: Area Code_____ Number_____

Position: (job title)_____ _____

Courses taught_____

Years experience in present position_____

Your immediate supervisor's name:_____

title:_____

Dean of instruction's name: _____

President/Director's name: _____

Date of birth_____ Age_____

Years experience in post-secondary educ. _____

Years experience in education (employed) Total _____

Years experience in business or industry _____

Are you certified as a teacher in Ohio_____ ___Field_____

Education

H.S. Grad _____yes _____no Curriculum: Vocational ___ General__College___

Assoc. Degree Major_____ Date_____ College_____

Bachelors Major_____ _____ _____

Masters Major_____ _____ _____

Name_____

DAILY EVALUATION SUMMARY

Using the attached program, evaluate the <u>content</u> of each presentation in terms of its value to you.

In the right hand margin, opposite the topic, mark one of the following ratings:

MV = much value
SV = some value
LV = little value
NV = no value
DNA = did not attend

DAILY TURN IN SHEET

Last Name_____

Speaker_____

1. Rate Content: HV SV LV NV DNA

2. Would you recommend using this speaker again? Yes No

3. Would you like us to ask this speaker to return for another session? Yes No

   3A. If yes, what would you like this speaker to present?

   3B. If no;
   1. Was the topic adequately covered? Yes No
   2. Would you prefer another speaker on this topic? Yes No
      a. If yes, what would you like another speaker to present?

KNOWLEDGE SCALE

Listed below are several statements. They relate to several types of information considered relevant to post-secondary occupational education. To what degree would you say that you are knowledgeable on each of these topics? Place an X at that point on each scale that agrees with your best judgment. An example of how you might mark a scale is given below.

NOT-KNOWLEDGEABLE__X__:_____:_____:_____:_____:_____:KNOWLEDGEABLE

1. Special learning needs of disadvantaged college students
   NOT-KNOWLEDGEABLE___:___:___:___:___:___: KNOWLEDGEABLE

2. Organization and services of the Ohio Division of Vocational Education
   NOT-KNOWLEDGEABLE___:___:___:___:___:___: KNOWLEDGEABLE

3. How adults learn: theory and application
   NOT-KNOWLEDGEABLE___:___:___:___:___:___: KNOWLEDGEABLE

4. Individualizing instruction
   NOT-KNOWLEDGEABLE___:___:___:___:___:___: KNOWLEDGEABLE

5. Utilization of behavioral objectives in instruction
   NOT-KNOWLEDGEABLE___:___:___:___:___:___: KNOWLEDGEABLE

6. Instructional systems
   NOT-KNOWLEDGEABLE___:___:___:___:___:___: KNOWLEDGEABLE

7. Teaching strategies and methods in technical education
   NOT-KNOWLEDGEABLE___:___:___:___:___:___: KNOWLEDGEABLE

8. Characteristics of Technical Education students
   NOT-KNOWLEDGEABLE___:___:___:___:___:___: KNOWLEDGEABLE

9. Characteristics of Technical Education faculty
   NOT-KNOWLEDGEABLE___:___:___:___:___:___: KNOWLEDGEABLE

10. Professional associations in Technical Education
    NOT-KNOWLEDGEABLE___:___:___:___:___:___: KNOWLEDGEABLE

11. The role of the Ohio Board of Regents in Technical Education
    NOT KNOWLEDGEABLE___:___:___:___:___:___: KNOWLEDGEABLE

12. The preparation of audio-visual instruction
    NOT-KNOWLEDGEABLE___:___:___:___:___:___: KNOWLEDGEABLE

13. Recent developments, problems, and issues in Technical Education
    NOT KNOWLEDGEABLE___:___:___:___:___:___: KNOWLEDGEABLE

14. Legal responsibility of instructors
NOT-KNOWLEDGEABLE___:___:___:___:___:___: KNOWLEDGEABLE

15. Development of lesson plans, units, and courses of instruction
NOT-KNOWLEDGEABLE___:___:___:___:___:___: KNOWLEDGEABLE

16. Development of technical education curriculums
NOT-KNOWLEDGEABLE___:___:___:___:___:___: KNOWLEDGEABLE

17. Function of student personnel services
NOT-KNOWLEDGEABLE___:___:___:___:___:___: KNOWLEDGEABLE

18. Guidance and counseling role of instructors
NOT-KNOWLEDGEABLE___:___:___:___:___:___: KNOWLEDGEABLE

19. Testing, evaluation, and grading
NOT-KNOWLEDGEABLE___:___:___:___:___:___: KNOWLEDGEABLE

20. Evaluation of instructors by administrators
NOT-KNOWLEDGEABLE___:___:___:___:___:___: KNOWLEDGEABLE

21. Personal teaching skills
NOT-KNOWLEDGEABLE___:___:___:___:___:___: KNOWLEDGEABLE

PHASE II QUESTIONNAIRE

Name .....

1. A. Do you feeI that two-year college instructors should be required to meet State certification requirements?

Yes No

B. If yes, do you feel that the requirements should be the same as for high school teacher certification?

Yes No

2. Do you feel that attendance at an institute similar to the one at Akron, should be required of all new two-year college instructors?

Required Optional Not Needed

3. A. What would be of most value to you during the weekend seminars which are to be held during 72-73? Be specific:

B. Preference of location: Resort motel__ Lodge__ Other__

City: Akron__ Cleveland__ Columbus__ Other_____

4. Would you like to see us provide short seminars on your campus for your entire faculty? Yes___ No___

5. Would you have attended this Institute if you had to pay your own way (tuition, books, dorm, etc.) Yes__ No___

INSTITUTE EVALUATION

Indicate your impression of the entire Institute by checking the statements that apply.

_____a. It was one of the best Institutes I have ever attended.

_____b. It was exactly what I wanted.

_____c. I hope it can be an annual event.

_____d. It provided the kinds of information that I can apply to my own situation.

_____e. It helped me personally.

_____f. I think it served its purpose.

_____g. It had some merits.

_____h. It was neither very good or very bad.

_____i. It was typical of many Institutes I have attended.

_____j. I was mildly disappointed.

_____k. It was not exactly what I wanted.

_____l. It was too general in nature.

_____m. I did not take away any new ideas.

_____n. It didn't hold my interest.

_____o. I was dissatisfied.

_____p. It was a complete waste of time.

NAME_____

UTILIZATION SCALE

Listed below are a number of statements. Each statement relates to information or a skill considered relevant to post-secondary occupational education. To what degree would you estimate that you have used the information and skills during this academic year? Place an X in the category on each scale that best represents your estimate. Note the marked example.

Used Frequently_____ Used Occasionally__X__ Never Used _____

1. Information about the special learning needs of disadvantaged college students.
   Used Frequently _____ Used Occasionally ____ Never Used_____

2. Information about the organization and services of the Ohio Division of Vocational Education.
   Used Frequently_____ Used Ocassionally ____ Never Used _____

3. Information about how adults learn: theory and application
   Used Frequently_____ Used Occasionally _____ Never Used _____

4. The techniques for individualizing instruction
   Used Frequently_____ Used Occasionally _____ Never Used_____

5. The utilization of behavioral objectives in instruction
   Used Frequently_____ Used Occasionally_____ Never Used_____

6. Information about instructional systems
   Used Frequently_____ Used Occasionally_____ Never Used_____

7. Information about teaching strategies and methods in technical education
   Used Frequently_____ Used Occasionaly_____ Never Used_____

8. Information about the characteristics of Technical Education students
   Used Frequently_____ Used Occasionally_____ Never Used_____

9. Information about the characteristics of Technical Education faculties
   Used Frequently_____ Used Occasionally_____ Never Used _____

10. Information about professional associations in Technical Education
    Used Frequently_____ Used Occasionally_____ Never Used_____

11. Information about the role of the Ohio Board of Regents in Technical Education
    Used Frequently_____ Used Occasionally_____ Never Used _____

12. Techniques for preparing audio-visual instruction
    Used Frequently_____ Used Occasionally_____ Never Used

13. Information about recent developments, problems, and issues in Technical Eduaation
Used Frequenlty _____ Used Occasionally_____ Never Used_____

14. Information about the legal responsibility of instructors
Used Frequently____ Used Occasionally____ Never Used_____

15. Techniques for the development of lesson plans, units, and courses of instruction
Used Frequently____ Used Occasionally_____ Never Used _____

16. Information about the development of technical education curriculums
Used Frequently_____ Used Occasionally_____ Never Used_____

17. Information about the function of student personnel services
Used Frequently_____ Used Occasionally _____ Never Used_____

18. Information about the guidance and counseling role of instructors
Used Frequently_____ Used Occasionally_____ Never Used _____

19. Techniques for testing, evaluation, and grading
Used Frequently_____ Used Occasionally _____ Never Used_____

20. Information about the process of evaluation of instructors by administrators
Used Frequently_____ Used Occasionally_____ Never Used_____

21. Information about ways of improving personal teaching skills
Used Frequently_____ Used Occasionally_____ Never Used_____

FINAL EVALUATION

Please rate or evaluate the following elements of the Technical Education Institute in terms of personal value. Circle your response.

1. Length of summer training period (Phase I)

   Too short Just right Too long

   Comments: _____

   _____

2. Number of topics presented in Phase I

   Too few Just right Too many

   Comments: _____

   _____

3. Number of speakers utilized in Phase I

   Too few Just right Too many

   Comments: _____

   _____

4. Number of weekend seminars in Phase II

   Too few Just right Too many

   Comments: _____

   _____

5. Number of micro-teaching sessions

   Too few Just right Too many

   Comments: _____

   _____

Note: Items 6-29 MV = much value; SV = some value; LV = little value;
NV = no value; DNA = did not attend, or, does not apply

6. Value of micro-teaching experience

   MV SV LV NV DNA

   Comments: _____

   _____

7. Living on campus

MV SV LV NV DNA

Comments: _____

_____

8. Value of eating meals together

MV SV LV NV DNA

Comments: _____

_____

9. Value of socializing with fellow instructors from other institutions

MV SV LV NV DNA

Comments: _____

_____

10. Value of University of Akron facilities

MV SV LV NV DNA

Comments: _____

_____

11. Value of the Institute staff

MV SV LV NV DNA

Comments: _____

_____

12. Value of weekend seminars (Phase II)

MV SV LV NV DNA

Comments: _____

_____

13. Value of topics and instruction presented during Phase I (summer)

MV SV LV NV DNA

Comments: _____

_____

14. Value of topics and instruction presented during Phase II (weekends)

MV SV LV NV DNA

Comments: _____

_____

15. Quality of speakers and guest lecturers

MV SV LV NV DNA

Comments: _____

_____

16. Value of total Institute

MV SV LV NV DNA

Comments: _____

_____

17. Value of your "certificate of completion"

MV SV LV NV DNA

Comments: _____

_____

18. Value of receiving academic credit (six quarter hrs.) for enrolling in the Institute

MV SV LV NV DNA

Comments: _____

_____

Note: The following services were proposed for the Institute but were not provided. Please rate them as if they had been provided.

19. Institute only for members of one institution or college at a time

MV SV LV NV DNA

Comments: _____

_____

20. Institute for only one technical area at a time (business, engineering, etc.)

MV SV LV NV DNA

Comments: _____

_____

21. Institute for only one geographic area at a time

MV SV LV NV DNA

Comments: _____

_____

22. Consultant services provided by the University of Akron faculty throughout the year (phone and mail only)

MV SV LV NV DNA

Comments: _____

_____

23. A visiting professor from the University of Akron to work with you at your college.

MV SV LV NV DNA

Comments: _____

_____

24. One or two day seminars at your college

MV SV LV NV DNA

Comments: _____

_____

25. An advanced Institute for the participants of this Institute

MV SV LV NV DNA

Comments: _____

_____

Note: 26-29 General value of the Institute

26. Value to you in terms of personal satisfaction

MV SV LV NV DNA

Comments: _____

_____

27. Value to you in terms of increased knowledge and skills

MV SV LV NV DNA

Comments: _____

_____

28. Value to you in terms of personal recognition by faculty or administrators

MV SV LV NV DNA

Comments: _____

_____

29. Value to you in terms of tangible recognition such as salary increase, tenure, promotion, etc.

MV SV LV NV DNA

Comments: _____

_____

THE UNIVERSITY OF AKRON
AKRON, OHIO 44325

Department of Secondary Education
College of Education

During this past year _____ participated in a Technical Education Teacher Training Institute at the University of Akron.

The purpose of the Institute was to attempt to give new teachers the necessary knowledge, skills, and abilities to function successfully as an instructor of Technical Education in a post-secondary institution.

We need your evaluation to assess the success of the Institute.

Please check one of the following in each question and return immediately in the enclosed envelope.

A. In terms of the purpose of the Institute, I feel that the above instructor:
   1. Benefited greatly by his participation _____
   2. Received some benefit by his participation _____
   3. Did not receive any benefit by his participation _____

B. Compared to other instructors who did not attend the Institute, the above instructor would be rated as:
   1. Performance better than most instructors _____
   2. Performance equal to most instructors _____
   3. Performance below most instructors _____
   4. No chance to observe _____

Your cooperation is greatly appreciated.

Sincerely yours,

Michael N. Sugarman

Michael N. Sugarman
Institute Director

MNS/plr